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ORIGINAL ARTICLES

SOME OF THE PROBLEMS OF THE INTERNIST WHICH CONCERN THE SURGEON.*

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The reason for this paper is the invitation of your worthy chairman, who wrote me, in part, as follows: "I am sure that at times the surgeon sees and observes things in the medical man which he would be glad of an opportunity to criticise." Let me hasten to say that I am not here as a critic, at least not as a destructive censor of the doings of that greater part of our medical body known as internal medicine men. No one appreciates better than I the force of the ancient saying that individuals living in glass houses "should dress in the dark." We all have our difficulties. This is no less true when the internist is forced, as he often is, to consider the question of the surgeon and his claims. Fundamentally, we will, I am sure, agree that most of the difficulties which come in to prevent the internist and surgeon from seeing the viewpoint of the other are due, in the main, to individual temperament. It is these temperamental peculiarities in the individual, be he internist or surgeon, which, after all, form the basis of our problems. Combine with our peculiarities the results of our environment, the general education of the individual concerned, together with his medical experience, and, I ask again, is it strange that the difficulties which we have in seeing the point of view of the other should result in problems?

Every earthly question, in its final consideration, is an individual one. This is pre-eminently true of the physician in his professional activities. No other profession, at least to the same degree, is both the judge and executive of its own thought. This being true, then, in no other position in life are the consequences of our actions, if based on insufficient reasoning, likely to be so dire. Any discussion, therefore, as to the relative relationship of individuals in the medical profession to each other must be based on premises which we, as a body, alone can

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understand. The great public rarely judge us on grounds that we recognize as reasonable. Too often our greatest reputation for doing good comes from circumstances which, if placed before a jury of our fellows, could not but bring condemnation. On the other hand, too frequently our best work is apparently lost on this self-same public, simply because they have no means of judging us as we should be judged. And so when we come together in the consultation room, or in our society meetings, we leave that part of ourselves which has been thinking and working alone, using only such part as will help us measure ourselves by the stature which we see in our fellows. Some one has recognized this by saying that we should "strive for the applause of the profession rather than that of the rabble." But in doing this we must recognize, before all else, certain fundamental factors which enter into every physician's life. The first is that we are not endowed with the same mental perspective. Some physicians develop early along certain desirable lines; others, again, are slow in gaining this recognition from their fellows, because of traits of mind and heart which, unfortunately, hold them back. And when these traits are so pronounced as to prevent a given physician from ever being recognized by his fellows, how great the misfortune for all concerned! With so much for an introduction, mainly because I wanted my point of view at least charitably understood, I enter on my task.

One of the problems of the medical profession to-day is the recent graduate who wants to do surgery. An equally important problem is the graduate of fifteen to thirty years ago who does not believe in surgery except as a last resort. The chief ambition of the recent graduate of my day was to do obstetrics and treat the diseases incident thereto. Good work was finally to obtain for him, as its reward, a reputation which would bring him money and a better reputation. The average graduate of to-day is looking to surgery as the most available means for immediate fame. The average older practitioner, whose medical horizon as to the possibilities of good surgery has not been greatly widened since leaving college, sees in these efforts of the youthful surgeon only the confirmation of his opinion that the surgery of to-day, after all, has no more to offer than it did in the days of his first medical observations. Unfortunately, there is a large number of both classes of these men in nearly every community, and they are doing more to prevent the real advance of our profession, as a whole, than any other class. The explanation is that they both lack the same thing, viz., a wider experience.

There are too many men going into surgery as soon as they leave the medical school. I met one of them a few years ago. He had had his diploma just two weeks. He was an average graduate of a medical school with a good reputation. This young man had not prepared himself specially for anything but good average work. He had not had the training of the average hospital interne, he had not served as assistant to a real surgeon, he had not gotten up his surgical technic by animal experimentation, he knew nothing of the practical application of asepsis or even of antisepsis, neither had he learned in the great school of gen-

eral practice; yet this doctor, who was just two weeks out of the opera chairs of his medical school, announced to me that he was ready to cut anything. And he did. Circumstances favored him so that he got surgical cases, and for a year or two he was literally doing surgery. Is he doing surgery to-day? No! Surgery has done him! He is in a position now where he has to commence all over again, if he wants to be a surgeon. But he probably never will. If the actual results of this man's work, while he was attempting to practice surgery, could be known, it would be a record heart rending in the extreme. Some of you may say that he was a fool. No, he was not. If I thought he were, I would not have made him a part of this paper. Neither would I have mentioned this case if it were an isolated or uncommon one. But what I have just described is being enacted in scores of places not only in this state, but in every one of our states. If human life and human suffering count for anything, as they do, then this is a condition of affairs that, to put it mildly, is unfortunate for the most desirable and truest advance of both internal medicine and surgery.

The explanation of this legalized assassin's opportunities for carrying on his ignorantly based work is twofold: First, the present-day medical school, and, second, the internal medicine man. First, as to the medical school. I can best say what I believe should be said by describing a lecture heard within the year delivered to the senior class of a leading medical school in one of our largest cities. The subject of the lecture was the operations on the stomach. Practically all of the possible operations on this viscus were described as found in the ordinary and average text-book to-day. No attempt was made, in the lecture, to furnish guides as to the best operation to select in a given case of disease of the stomach. Not one word as to its dangers, and the pity of it all was that these young men were left with the impression that operations on the stomach were easy. I might say that this is also one of the grievous faults of our modern text-books and even of many of our modern surgical authorities. The surgeon and the surgical writer forget too often that what is easy for him, after a ripe surgical experience, may be a veritable Waterloo when attempted by the novice. But, second, these errors of the teachers and the text-books, in this particular, could not do the harm that is being done to medicine to-day were it not for the laxity of the general medicine man, who is neglecting to diagnose certain very common surgical diseases, and, with it, failing to know what real surgery can do and is doing for their cure. In a community this failure on the part of a man who, because of the excellence of his previous work along general medical lines has earned for him a good reputation, is most lamentable. It gives the illy-prepared surgeon the opportunity he covets, and which he would not have had if his medical competitor had not depended too much on the symptoms and their relief from within the confines of his medical case.

The ancient relationship between medicine and surgery has been temporarily severed. In the old days the internal medicine man made the diagnosis, decided what the treatment was to be, and if, in a given

case, surgery was necessary, notified a surgeon that he might arrange to perform it. In this day what do we see? The average practitioner of internal medicine is not making the diagnosis where the stomach, liver, gall bladder, pancreas, and intestines, including the appendix, are involved. I believe that the future will show that 50 per cent. of the cases having symptoms referable to the stomach can not be benefited by a resort to the knife. The remaining 50 per cent. need the surgeon, usually need him badly, because the internist, into whose care they first came, failed to make a diagnosis. The success of the master surgeons in this latter class is throwing nearly all the diseases of the alimentary tract, at the present time, into the care of the surgeon. The real surgeon culls the cases which he has learned will be benefited by his art, with the result that an equal number, which under a well-informed attempt at diagnosis would and should be benefited by the internist, are left to drift. It is this great class who, thinking that they have tried all that internal medicine has to offer, too often take up the various fads, religious and otherwise, finally to end in the care of the untrained surgeon.

Too many internal medicine men still talk about dyspepsia and colitis, forgetting that the liver or gall bladder, an ulcer of the stomach or the duodenum, or a chronic appendicitis may give rise to these symptoms. Too many internal medicine men are still prescribing for symptoms, forgetting that a symptom of a disease is not the disease itself; that a symptom, like the bark of a dog, merely tells us that there is such a thing as a dog in the neighborhood. Too many internal medicine men are still using agents in the treatment of the symptoms of diseases of the abdomen which are not only inert and, therefore, useless, but harmful, mainly because of the delay which their use occasions. This could be well illustrated by some very interesting cases did space not forbid. Suffice it to say that in this day the internist is leaving the diagnosis and the consequent correct treatment of too many of his cases to the surgeon, thus reversing, I repeat, what was true in former days. We no longer hear anything of a serious nature as to what constitutes the correct treatment of appendicitis. Both the internist and the surgeon now agree on what, in the immediate past, often provoked heated, if not acrimonious, discussions. This stage has not yet arrived as to the diseases of the abdomen, especially its upper part; but, when it does, it will have back of it the impressive lesson of the surgery of the appendix.

In consultation recently with an internist, I was struck with the remark which he made, viz., that he would give half of what he was worth to be able to diagnose gastric ulcer and to differentiate it from the conditions with which it is often mixed. I told him, and I tell you, that every physician can have, and should have, in mind, when the symptoms in his patient point to the stomach or intestines, the picture of which gastric ulcer is most frequently the chief factor. This knowledge is not difficult to acquire. Every physician who sees many office patients has among them each day from one to four stomach cases, whether he recognizes them or not. To-day it is the most common condition with which we are confronted for treatment. When you begin to look for ulcer, you will

find it, and you will find at the same time that it is the open door to a gradually acquired knowledge that will permit of the diagnosis of all the common and uncommon lesions of the abdomen, and especially of the upper part of that intensely interesting cavity. After once being acquired, it is really a comparatively simple subject. Each case, as its symptoms are revealed, will almost unconsciously, in the mind of the examiner, drop into its proper class, and the treatment other than surgical is simple, and the results correspondingly gratifying.

It may be said, in passing, that at the present time this subject is treated in a more comprehensive way in medical journal literature than in the text-books. The varying descriptive power of the authors of journal articles, as a rule, gives one the different points of view necessary to get the foundation for a correct understanding of a subject, the fundamental part of which has already gone into the physician's education. It is rather surprising that no one has attempted to arrange a simple working text-book on the diseases of the stomach, instead of giving us the bulky and ponderous tomes so often padded with the rejected and ancient stuff that was once valuable in a way and in its day.

But I have digressed somewhat from my subject, and, in order to get back to it, I will just touch on a portion of it that is an ever-present one with every surgeon. I refer to the cases needing surgery almost from the beginning of their illness; but which are usually, after an unfortunate length of time, loaded on a stretcher, put in a spring wagon and accompanied often by an important contingent of the citizenship of the town, carried to the depot, thrust into a baggage car and rushed to the nearest hospital. When the latter is reached, the surgeon, who has been notified by telephone or telegraph that a case for immediate operation is on the way, finds (and sometimes to his sorrow) a patient in whom the golden opportunity for good results has been sinned away. The surgeon then finds himself, on the one hand, between a desperately sick patient, who with his friends expect some results from surgery, and, on the other hand, the reputation of the physician, who is responsible, many times, for the delay. If the operation is performed and the patient dies, as is the rule in this class of imperative surgical cases, the reputation of the family physician must be safeguarded at all hazards. But what of the reputation of the surgeon? Has he not also the right of protection as far as it can be honestly given by the practitioner who referred the case? This is a simple proposition and would seem imperatively to require but one answer. But, to my utter chagrin and disappointment, I know of surgeons who have had to shoulder the onus of the whole unfortunate affair; while the practitioner, who was mainly responsible, stood from under. I have seen whole communities, after an experience like this, steal away—unlike the traditional Arab, not silently, but loudly—from a surgeon whose previous record for good work for years in that community had been of the best. The interesting part of it is that the majority of these practitioners are not unmindful in their intentions of the other fellow's reputation, even in a case like this. It is fully explained by what I referred to in the first part of this paper, viz., lack of experience in dealing under pressure with grave difficulties. The cases that do not

belong to the acute emergency class from the very first, in other words, the chronic cases who are allowed to become desperately sick and have to be brought to a hospital on a stretcher, are an evidence, i. e., the stretcher is the evidence too many times, that some one has made a diagnosis that was too late in the making. If this is not the explanation, then it is worse, in that the proper treatment has been withheld, with only a vain hope that something less than surgery would suffice. Most of these cases, too, belong to the abdominal class, for which I am pleading that the internist make an earlier and more rational diagnosis.

In addition to doing this, the internist should also be familiar with what surgery has to offer in the way of treatment where internal medication is producing only temporizing results. The failure to do this, on the part of many general practitioners, is the explanation of the more or less chaotic condition in the practice of medicine in many localities. It will account for the skepticism in medicine, as to the probability of doing anything of permanent value in a large number of cases. With this mental attitude present, the physician stops trying, except in a perfunctory sort of way, until finally the patient slips away to some hospital and, if fortunate in finding a real surgeon, he is relieved or cured of his ills. I say this rather positively because, as before stated, the real surgeon usually knows, after examining the patient, what he can do. My plea is that the family physician should also have known and in this way obtained that which is pre-eminently his right, viz., to have divided the honors with the surgeon.

Many general practitioners seem to be acting on the assumption that surgery has already usurped the whole field of medical practice. It never can, and from the very nature of disease and diseased processes never will. Surgery has a glitter that will always be attractive to every thinking mind. Part of this is due to the fact that the cases in which it is applicable are comparatively rare. In an office where a large number of patients are seen each day, experience has shown that of every twelve examined but one will prove to be a subject for the knife. When this is fully realized, it will stop the rush on the part of so many, especially of the younger medical men, into surgery, because of the apparent, but not real, tendency of medical practice to-day to go that way. It has always been true, and it always will be true, that surgeons are born and not made. The wonderful art of the schools can make a man look like a surgeon for a time, perhaps; but in the light of the years he can maintain that right only by proving it.

To-day, with all the very apparent progress in surgery, if one will but notice, there are only a few real surgeons. There are only a limited number of names in any country that by common consent stand for and deserve the name of surgeon. There are no more genuine surgeons to-day, according to population, than there were fifty or one hundred years ago. At that time each state had a very few men who, by common consent, were recognized both by the profession and the public as surgeons. This is still true, and probably will remain true for at least many generations of men. In spite of this, with the advent of antisepsis which made surgery look so easy, hundreds rushed in where previously even

angels feared to tread. But the profession and the public of to-day are slowly learning, as the profession and the public learned in the years immediately following the advent of anesthetics, that power to operate without pain on the part of the patient did not prevent the common sequel of operations in the days preceding anesthetics. Freedom from pain did not prevent deaths from shock, from sepsis, and from bad surgical judgment. All of which holds true to-day, with the addition that, in these latter days, to the freedom from operative pain has been added, in many instances, the freedom from sepsis. But it takes more than an anesthetized patient whose wounds are to heal without infection to demonstrate that the operator has a born right to the name of surgeon. Without good surgical judgment, no man can be a surgeon in the best sense of that word, no matter what his education, his opportunities, his experience, or his location.

To-day the pendulum is swinging back to where it was years ago, when the South had its Sims and McDowell, the East its Mott and Gross, and the West its Brainard and Gunn. With the increase of population have come more surgeons. In our state, Prince of Jacksonville and Byrd of Quincy have left reputations which, from every standpoint, made them worthy compeers of any of their day and generation. As the general practitioner made the surgeon in the old days, so in this he must still stand sponsor for him. While internal medicine must know its possibilities and learn its limitations, it must at the same time also learn the possibilities and limitatons of surgery; if it does not do this, then it will fail to achieve what would otherwise be possible for it to do in the largest measure.

DISCUSSION.

Dr. N. S. Davis, of Chicago:—There is no question about there being a field in which we, as internists and as surgeons, meet the same problems, and where we are confronted constantly with the question whether the individual patient is in need of surgical treatment only, or of medical treatment pure and simple. Very frequently that question is one which cannot be answered with absolute positiveness, largely because of our ignorance of existing conditions.

This problem is one that we meet often in cases of appendicitis. We all know that very many cases of appendicitis recover; make lasting and permanent recoveries without operation. We also know that a certain proportion of cases, if not operated on, are almost sure to terminate fatally, because an operation was not advised. It is impossible for us, as clinicians, to say to which class of cases the individual case belongs. I have seen cases of appendicitis, as many of you have, that were doing extremely well, in which the acute symptoms had passed, when suddenly perforation occurred, and fatal symptoms appeared, without warning. As these mistakes are likely to occur at any time, I feel that we cannot do justice to our patients without urging or recommending surgical treatment. If, as is frequently the case, the patient or his relatives object to surgical intervention, I have no hesitation in attempting to do all I can by medicinal treatment, feeling that, in the majority of cases, the patient will get along nicely under this treatment alone; yet I am always conscious of the misfortune we may meet with, in postponing or neglecting operation.

The trouble is that we are not able to determine the pathologic condition of the appendix as it is indicated by the clinical symptoms. We are unable to make a suitable classification of these cases, to say positively which case belongs to the surgeon and which case belongs to the medical man. We are able to locate the conditions anatomically, but we cannot determine the pathologic condition of the appendix. The same thing is true in the majority of diseases in which both the surgeon and the internist are interested, where they meet on a middle ground, and where they must determine what kind of treatment the individual should be given, whether surgical or medical. Of course, it is only a matter of a very short time when our knowledge of these things will be greater and we will be able to say what kind of treatment should be given the patient. Then there will be many more cases treated medically than are so treated at the present time, that is, cases that are common ground now for the medical man and the surgeon.

Dr. Arthur Dean Bevan, of Chicago:—There are a few points in connection with this paper on which I wish to speak. First, in regard to the young medical man who is attempting to do surgical work. I always felt that the best solution of this problem is found in demanding a hospital training for our young medical men. As a matter of fact, the dental graduate enters on his actual work of practice very much better prepared to do his work than does the young medical man, because the latter is without any training which fits him to meet the conditions as he must find them. The young dentist actually does a lot of clinical work before he graduates; that is not true of the medical man, unless he has served a hospital internship. I firmly believe that the time is coming in this country, as it has already come in Germany, when, before a man can graduate in medicine and take an examination which will entitle him to practice, he will be compelled to take at least one year in a hospital, serving as an assistant under some good man. That is the solution of the problem.

I do not believe that Dr. Percy is right when he says that surgeons are born, not made. He is in error. It is only necessary to cite the fact that Billroth filled almost every large surgical clinic in Germany and Austria with his students, which proves that it is the master who makes the man. The students of Billroth were not born surgeons, but they were made surgeons by being brought to see surgical work done by a master. That is the way in which this question will have to be solved in this country. Our young men must have the opportunity of working under masters in surgery. In the evolution of medicine as a whole in this country there are bound to be lines which divide the practitioners into specialists. The known facts of medicine are not so many but that they can be grasped and arranged systematically by any well equipped brain.

I do not agree at all with the idea that there must be only a few surgeons. I think the medical man of the future, as was expressed recently by Dr. McBurney, will be a well-qualified internist who can operate. It will be well enough in large communities like Chicago and New York, or towns of two or three hundred thousand population, to have the medical men divided into groups, that is, to have specialists, but in the ordinary practice throughout the United States, in cities of ten or twenty thousand population, the best doctor is the general practitioner, the man who can treat typhoid and appendicitis, pneumonia and empyema, the man who can cover the ground formerly covered by the old-fashioned country

doctor, and who is also qualified to operate. These men do better work in handling a given thousand cases than would be done under the same conditions by ten different specialists. They make fewer mistakes and do less unnecessary work. They will be the medical men of the future.

Dr. E. J. Brown, of Decatur:—I agree with Dr. Bevan that a surgeon is not necessarily born. As a rule, he is made. The best thing, however, that ever can happen to the practitioner of medicine is to find his limitations. We all know that an immense lot of surgery, and very poor surgery at that, is being done everywhere, even by men of good reputations, and I think that when every man reaches the point where he can decide in what particular field he can do the best work, he will have reached the happiest moment of his life.

Dr. L. C. Taylor, of Springfield:—I wish to take exception to one idea advanced by Dr. Percy, and if I have misunderstood him, I would be very glad to have him correct me. I understood him to say that the diagnosis of diseases of the stomach, especially gastric ulcer, could be made on certain lines and with comparative ease. I must differ from him in that regard. I know of no disease that we are called on to treat in which we are inclined to be more in doubt than we are in the differential diagnosis of incipient affections of the stomach. That remark does not apply to the general practitioner at all, but to men who have made diseases of the stomach a specialty. When these men will make a diagnosis of carcinoma of the stomach, when the real condition is one of diverticulum of the esophagus some six or eight inches removed from the stomach; when good surgeons will perform a gastroenterostomy in cases of cardiospasm, we must confess that even the best men find a great deal of difficulty in correctly diagnosing diseases of the stomach. A few years ago an examination of the contents of the stomach was recognized as being of great value in diagnosing diseases of the stomach, but we know to-day that even such an examination cannot be relied on under all circumstances.

It certainly is of vast importance to arrive at a definite conclusion in the early stages of these diseases, and anything that will assist us in making a diagnosis at such a time must be hailed with delight. I am very pleased to have heard this paper; I have the greatest respect for its author, but if he will give us some of the points in differential diagnosis of some of these conditions, he will confer a greater boon on his medical associates than he will on his patients.

Dr. J. S. Beaudry, of Chicago:—I am convinced that we can develop good surgeons in small places. One of the leading physicians in the city in which I practiced at one time was engaged in general practice. He began to go to Chicago three times a week, and under a competent man began doing general surgery. The result is that he is doing good surgery to-day, his technic is as good as that of any surgeon I know, and his results are the equal of those of competent men, and I have seen many surgical operations in Chicago and elsewhere.

Dr. John P. Roark, of Bushnell:—There are some things in the doctor's paper in which I was interested particularly. In regard to the attitude of the man who graduated fifteen and twenty years ago, with reference to the benefits that may come from surgery, I wish to say that the man who considers nothing but statistics when he operates is likely to get an exaggerated idea of the benefits of surgery. There are some cases, particularly abdominal cases, where it is impossible to know in the beginning whether or not surgical intervention is indicated.

It is this class of cases that is epecially in need of the wisdom of the general practitioner. At times, the general practitioner will make the mistake of not sending his patients to the surgeon soon enough; I have made that mistake myself, but I have also made the mistake of sending my patients to the surgeon too soon. Only to-day a patient came back to me after having had a mutilating operation done that probably was not required at all. Often it is a matter of great difficulty for the general practitioner to know when to send his patients away, and to whom to send them. That point was well taken by Dr. Percy. If he sends his patient to a man who will do an operation whether it is needed or not, both he and the patient are likely to lose by the transaction. If the general practitioner does not send his patient to the surgeon soon enough, the patient may lose a limb, or even his life. These are things that will always depend on the judgment of the individual physician. The practice of medicine is a profession. If it were possible to figure out things in that profession as we do the laying out of a stone wall, medicine would be a trade, and not a profession.

Dr. E. R. Larned, of Chicago:—I wish to criticize Dr. Roark, who has given us an imputation on the moral honesty of the men of the state who he says will operate whether or not the patient needs it. I am not a surgeon, and I never expect to be one, but no man has a right to make a statement of that kind without being sure of the facts. There is not a man holding membership in this society who will operate on a patient when it is not necessary.

Dr. C. L. Mix, of Chicago:—Apparently the words internist and general practitioner are synonymous terms, as might be inferred from the discussion, but in reality they are not. The general practitioner devotes his attention to everything, surgical as well as medical. The general practitioner is as much of a surgeon as he is an internist, but the internist is a specialist. I believe the only men in the profession who ever take any interest in the giving of a test meal are the internists. The surgeons certainly do not, or if they do, it is done very impractically. Their idea is to look in and see. It is not a difficult thing to open an abdomen and see what is in it, hence we have these exploratory laparotomies, which are done five to one, five by the surgeon to one advised by the internist. That is undoubtedly the case in many of the larger cities. The internist, as a rule, devotes his energies very thoroughly toward making an absolute diagnosis in the case in hand, and generally he comes pretty near doing it. I believe the internist recognizes ulcer of the stomach far more often than the surgeon does.

I understood Dr. Percy to say that 50 per cent. of the diseases of the stomach are surgical affections. I cannot accept these figures at all. In the first place, I do not believe that ulcer of the stomach is a surgical disease. The vast majority of these cases are easily curable by ordinary dietetic and medicinal measures, the former, of course, preponderating. I do believe that the carcinomatous cases belong to the surgeon, but there is a tendency on the part of the best surgeons to have as little to do with these cases of carcinoma as they possibly can. One surgeon in Chicago does not take them at all if he can get out of it.

As far as surgical operations on the stomach in chronic gastric catarrh are concerned, I cannot see any excuse for this, but in cases of secondary contraction of the pylorus from healed ulcer, those are strictly surgical cases, and the internist very frequently advises the surgeon of the existence of such a state of affairs instead of having the surgeon advise the internist afterward. As a matter of fact, many cases are helped and not hindered by surgical operations, which are done too frequently, and the criticism that Dr. Percy has made that many rush into surgical operations where they should not is a perfectly justifiable one. I have had cases where the patient had an abdominal operation done, usually for some pelvic affection, where the subsequent nervous condition was absolutely caused by the operation.

I think we have all referred cases to the surgeon where we have regretted the action afterward. The surgeons do not cure everything, and frequently they do not agree with the internist. I sent a case of ovarian cyst to a surgeon who disputed my diagnosis. He operated, however, and found the cyst. Recently I sent another patient to a surgeon with a diagnosis of gallstones. He said the diagnosis probably was wrong, that it was a case of abscessed gall-bladder. He operated and failed to find any pus in the gall-bladder, but the stones were there.

As far as my own experience is concerned, I think that usually the diagnosis is made by the true internist, not by the general practitioner, with a good deal more certainty than it is by the surgeon.

Dr. Brown, of De Kalb:—No man has any right to be a surgeon unless he has been a general practitioner. He bears the same relation to the building as the man who mixes the mortar does to the architect. He can do the work, but he is not competent to make the diagnosis. If you have a case of placenta prævia and call in a surgeon, what does he know about it? It is the general practitioner who is competent to make the diagnosis, and it is the surgeon who is competent to do the surgical work. Many men do surgery who are not surgeons at all. They are bunglers. They have not the necessary tact. The man in the country often performs surgical operations of all kinds just as well as does the specialist in the large city. I believe that the general practitioner of experience is in a very much better position to make a diagnosis than is the specialist surgeon, who looks at the case from one standpoint only, and who sometimes performs operations that never ought to be performed.

Within the last six months I have seen two instances in Chicago where an appendix was removed that was not diseased at all. The general practitioner would not have done this, but if the appendix is diseased, he can remove it just as well as the surgeons in Chicago.

Dr. Percy (closing the discussion):—I appreciate very much the kindness with which this Section has received my paper. I believe, however, that most of the points brought out in the discussion were covered in the paper. The point made by Dr. Bevan that Billroth made surgeons in Europe undoubtedly is true. Volkmann did the same. Some of the best surgery that is being done in Europe to-day is being done by men who served under these masters. Yet the point made in my paper, which I think was missed, was the fact that men go into surgery without any real preparation for it. One of the things I look back to with pleasure in my own work is that I killed dogs before I killed anybody else.

I still maintain that the general practitioner has no right to do surgery. I saw a man remove a mole from the face of a girl, who was dead five months after he cut it out. The man, who, when business is dull, gets a case of appendicitis and says to himself that he might as well cut out the appendix as send the patient to Chicago, may be successful nearly all the time, but once in a while the result of his over-confidence is a tragedy. He will suffer more in his nervous system until he knows that the case is safe than will the man who is doing surgery constantly. When it comes to a death there is no amount of money that anybody will get out of a case that will pay him for what he has lost in the way of prestige or criticism in his community. There are men whose reputation for good judgment has been lost by one case of this kind. It is an interesting fact that the very men who come out of hospitals, and who have good surgical training, who locate in small towns, do not, as a rule, do surgery in that community. I have had experience with many of them, and they have told me that they would not risk the loss of a case in their community because they could not do general practice thereafter.

There is no man who is doing both medicine and surgery who can ever become a great surgeon. I saw a case of appendicitis not long ago operated on by a gen-

eral practitioner. It was only an ordinary case, but it took him four hours to take out the appendix. He was a good doctor, too, but he was itching to do surgical work without being able to do it. Fortunately for him, his patient got well, but he objected when the doctor charged him one hundred dollars. That same patient, if he had gone to Chicago, would have willingly paid, two, three, or even four hundred dollars for the same operation done by a man with a reputation.

A man never learns where he belongs. The point I made in my paper was that the general practitioner should learn enough about surgery and its possible results so as not to make a mistake. When he is qualified to do surgery, there is no harm in his doing it, but, until he is qualified, it is well for him to go slowly.

As to the criticism of my friend, Dr. Taylor, I still maintain that the man who looks for the gastric ulcer will find it. I know that to be as true as I do that blue ointment will cure the itch.

Dr. Mix brought out one thing with reference to acute cases. These acute affections of the stomach are never surgical. But here is the great question of carcinoma. If the surgeon gets these cases early, he can add many months to the life of the individual, but when the diagnosis is made, it is usually only a question of a few weeks before death ensues. It is at a time like this that surgery is brought into disrepute. It is better not to operate in these late stages of carcinoma. But I would rather open fifty abdomens unnecessarily and find only one case of carcinoma of the stomach than not to have opened any abdomens and to have lost that one life. It is a reflection on us to have lost a life that could have been saved, and that would have been saved if we had only taken the proper steps to do it.

THE SIGNIFICANCE OF HYDROCHLORIC ACID VARIATION IN THE STOMACH CONTENTS.

EVERETT J. BROWN, M.D.
DECATUR.

When the new era in the diagnosis of stomach diseases by the analysis of the contents was inaugurated, and it was found that in cancer, free hydrochloric acid was usually absent, it was thought that a sure test for this disease had been found, but it was soon discovered that free hydrochloric acid was occasionally absent in other conditions also, notably chronic gastritis and the rare condition of complete absence of gastric juice now known as achylia gastrica. It was then found that cancer usually showed not only absence of hydrochloric acid, but also the presence of quite large amounts of lactic acid. Here, too, we were to be disappointed, for it was found that there could be an entire absence of free hydrochloric acid with a goodly amount of lactic acid in other conditions not cancerous, especially in aggravated cases of asthenic gastritis with great stagnation of stomach contents. Hence, in the diagnosis of gastric cancer, other evidence in addition to the absence of hydrochloric acid and presence of lactic acid must be forthcoming.

Osler records that in ninety-four cases of cancer of the stomach in which the contents were examined, free hydrochloric acid was absent in

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eighty-four cases; other observers confirm these findings, so that it is safe to affirm that in more than 90 per cent. of cases of gastric cancer there is no free hydrochloric acid found. Therefore, the absence of hydrochloric acid in the stomach contents is an important, but by no means a conclusive, evidence of this disease, as other members of the symptom-complex, such as tumor, age of patient, anemia, pain after eating, hematemesis, lactic acid, etc., must be present.

Einhorn says that over one-half of the cases of stomach diseases which present themselves for treatment show an excess of hydrochloric acid in the stomach contents. He found the index for total acidity to average over 60, and of these more than half showed an index over 80.

The normal per cent. of hydrochloric acid is usually recognized as 0.070 to 0.100 per cent., corresponding to the titration figures, 20 to 30. Some authorities put the percentages somewhat higher, but it is well known that in persons having more than this a majority will show stomach symptoms. Occasionally, persons are found with continuous high acidities for months or years, but without symptoms. Normal total acidity varies from 40 to 60, although occasionally it may reach 100 without producing symptoms.

The amount of hydrochloric acid in the stomach may be increased by massage of the abdomen, both in health and in disease. Hence, the value of that procedure in subacid conditions, such as gastric catarrh, achylia gastrica, etc., and its injurious effects in hyperacid conditions, such as hyperchlorhydria and other hypersecretions.

It is also well known that an entire absence of hydrochloric acid may exist for years with apparent good health. Cabot says: "Hydrochloric acid is a luxury in digestion and by no means a necessity." In achylia gastrica, a condition in which there is neither free hydrochloric acid, pepsin, nor the rennet ferments, no symptoms may exist for years, providing there is no motor insufficiency. Einhorn reports a case in which for years no gastric juice was ever found, yet perfect health existed, the small intestine acting vicariously. One of Ewalds cases gained forty pounds under treatment, yet with no improvement in gastric juice.

For the last two years I have had under observation a case of achylia gastrica in a young farmer, aged 24 years. In six analyses of the stomach contents extending over that period, at no time have I found the slightest trace of free hydrochloric acid; the total acidity has ranged from 4 to 12, and at all times both rennet and pepsin ferments have been absent. His normal weight had been 150 pounds; at the beginning of treatment he had lost fifteen pounds; after ten months' treatment, with large doses of dilute hydrochloric acid, nux vomica and dieting, he gained 33 pounds and continues now in good health.

Cases of gastric neurasthenia will at times show the greatest variation in the free hydrochloric acid index. A young student, under my care in October of last year, showed absence of hydrochloric acid with total acidity of 40; again, in February, no hydrochloric acid, but, on May 1 of this year, the free hydrochloric acid was 35 and total acidity 66.

Graham Chambers has called attention to the relation of hyper-

chlorhydria to the so-called "bilious attacks" and to some forms of eczema, also to gout and muscular rheumatism. In many of these cases an excess of hydrochloric acid is found in the stomach contents. In several cases of severe bilious attacks he induced vomiting with apomorphin, and the analysis of the vomit showed a great excess of free acid. He noticed that many cases of eczema were cured by the same alkaline treatment which is given in acid dyspepsia; also that many cases of gout and muscular rheumatism show hyperacid stomach contents. I recall myself two cases of chronic urticaria, which are free from attacks, while taking rhubarb and soda tablets.

All physicians who do thorough stomach work realize that the greatest difficulty is the differentiation of the gastric neuroses from organic disorders. One of the most frequent errors is the diagnosis of almost every gastric neurosis as a gastric catarrh or chronic gastritis, and at times the differentiation is very difficult. As regards the presence of hydrochloric acid in the stomach, it is common to recognize three varieties of chronic gastritis: (1) An excess of hydrochloric acid, known as acid gastritis; (2) a lessened acidity as the disease progresses (the more common form); (3) a condition in which hydrochloric acid is practically or completely absent. One finding, however, is characteristic of all these forms, viz., mucus in greater or less amounts.

There is no disease of the stomach in which the determination of the amount of hydrochloric acid in the contents is of more importance than in the disease known as hyperchlorhydria or hyperchylia, as Hemmeter calls it. This is the typical neurotic stomach and constitutes the largest proportion of the stomach cases seen by the general practitioner. Although the disease may often be diagnosed by the subjective symptoms, such as pain or burning with empty stomach, which is relieved by eating or by soda, and acid eructations, etc., yet in certain cases it is only by a test meal and analysis that an exact diagnosis may be made. Free HCl index of 40 or over is usually present, although in rare cases it may reach even 60, without symptoms. It is in this disease that the routine use of hydrochloric acid as a remedy has done such harm, but there is no disease where the results of proper treatment are more satisfactory.

In dilatation of the stomach the detection of the amount of free hydrochloric acid is of the greatest importance, for this condition exists in three marked forms: (1) Dilatation with normal acidity; (2) dilatation with subacidity or an anacidity; (3) dilatation with hyperacidity. Each form requires a different line of treatment.

It is needless to describe the various tests for hydrochloric acid, as they are found in every text-book, but I wish to speak of the value of urine analysis in the diagnosis of gastrointestinal diseases and refer also to the Sahli desmoid test. As is well known, the urine is most highly acid before meals and least acid or even alkaline after meals. With a lessened hydrochloric acid secretion, the normal reduction of urinary acidity is lessened or fails altogether. With an excess of hydrochloric acid in the stomach, a marked alkalinity occurs in the urine after meals. In hyperacidity, the chlorids are also much diminished in the urine, and

by making a quantitative analysis of the urine by the Purdy centrifuge method much valuable information is obtained, especially, if for one reason or another, the stomach tube can not be used.

A year ago Sahli published a new method for testing the digestive and motor functions of the stomach. It is known as Sahli's desmoid test. In a little rubber bag, about the size of a small pea, is placed methylene blue or iodoform; the bag is tied tightly with thin raw catgut. The desmoid bag is swallowed by the patient, after a large meal, and the urine is examined for methylene blue or the saliva is tested for iodin by means of starch paper and fuming nitric acid. The reaction occurs, in healthy persons, in from six to eight hours. If it occurs later or fails entirely, it points to insufficiency of the stomach. Sahli bases his test on the assumption that raw connective tissue is digested only by the gastric juice and not in the intestines. With hydrochloric acid present, together with its accompanying pepsin, the catgut is well digested and the contents of the bag liberated and the urine or saliva shows the reaction. In conditions of hydrochlorhydria or ulcer of the stomach, the reaction occurs early, and with hypo-acid conditions, such as gastric catarrh, dilatation and achylia, it occurs late or not at all.

This method is still in the experimental stage, and, if it should prove to be of value, it will greatly simplify gastric diagnosis and render the use of the meal and stomach tube less often necessary. In the last number of *The Journal of the American Medical Association*, Einhorn speaks of the new test as unreliable, from the fact that the intestinal juices are also capable of digesting the catgut ligature and thus liberating the reagent.

Although not included in the title of my paper, I thought best to refer here to the therapeutics of hydrochloric acid and, incidentally, to pepsin, as the latter is generally loaded in the same gun with hydrochloric acid in the shotgun prescriptions of many practitioners. Pepsin we now regard as a therapeutic joke. It is absolutely without value in 99 per cent. of the cases in which it is used, and the use of a solution of pepsin containing alcohol is a farce. No other field of therapeutics exhabits so well the simplicity of medical men in allowing the pharmaceutical chemists to educate them on the action and indications for the use of drugs. They accepted the dictum of the commercial traveler that anything which will digest a slice of egg albumin in a test tube will do it equally well in the stomach. Fortunately, however, pepsin is harmless and has its uses as a placebo. Not so with hydrochloric acid, however, the indiscriminate use of which constitutes the "greatest sin of commission" of so many physicians. When we know that nearly 60 per cent. of patients coming to us for treatment for stomach symptoms already have too much of this acid in their stomachs, we realize that this 60 per cent. would be injured or at least not benefited by the use of this drug. We also know that whenever hydrochloric acid is present there is also plenty of pepsin. When rightly administered, however, there is no drug which yields such useful and often even brilliant results as hydrochloric acid. In all conditions of subacidity or anacidity, such as chronic gastritis,

cancer and achylia gastrica, it is indispensable, while it is useless in ulcer, in hyperchlorhydria and in other neuroses.

FLATFOOT AND SYMPTOMATIC ARCHES.*

FRANK B. LUCAS, M.D.
PEORIA.

How great a distress may arise from a seemingly trivial deformity is well exemplified by the condition known as flatfoot or pes planus. In beginning a review of orthopedics, how natural it is to think of the foot, but how seldom anything less than clubfoot is considered of real consequence to the general practitioner. Being a victim, to a considerable degree, of flatfoot deformity, and knowing, from years of experience, the disability and actual pain endured from it, I consider that I may well call your attention to a few things that you may not have given particular attention.

How often have you diagnosed rheumatism or neuralgia of the feet without even removing the shoe, much less the stocking? I fear we have all made the same error many times, and even should the condition present be suggested to our minds, yet it is put off as a thing of small importance and the patient receives a course of salicylate of soda, lithia tablets, or is instructed to bathe the feet nightly in hot water, or to wear a different kind or shape of shoe, etc.

Now, while all static foot troubles are not flatfoot, yet this deformity or arch deviation is in many instances accountable for the disabilities spoken of, and can easily be eliminated as a cause, if examination be made even in such a simple manner as I shall hereafter describe.

The anatomy of the normal foot, with reference to its mechanical construction, will be the first thing to consider. Its osseous structure, as you know, is composed of three sets of bones known as tarsus, metatarsus and phalanges. The tarsus consists of seven bones, viz., astragalus, os calcis or calcaneum, scaphoid, cuboid and internal, middle and external cuneiforms. The metatarsus is composed of five bones, and the phalanges are fourteen in number, the great toe having two and the other toes three each. In addition, there exists two sesamoid bones at the metatarsophalangeal joint on its plantar surface. Of these bones, we may exclude the sesamoids and phalanges for illustrating purposes, as they are adjuvant to the weight-bearing function. The bones of the tarsus and metatarsus are united by ligaments in such a way as to form two distinct arches with their convexities directed upward and being at right angles each to the other.

As suggested by Ellis, the construction and shape of the arched part of the foot may be better understood by considering it as half of the arch formed by the two feet.

These arches are termed the longitudinal and transverse arches and are the vital points in the mechanism of elastic weight bearing. When these arches are intact the astragalus bears a definite relation to the

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underlying calcaneum, also the first and fifth metacarpo-phalangeal articulations bear definite relations to each other and to the inferior surface of the calcaneum, forming three points of an irregular triangle, with its base at the transverse arch and its apex at the heel (Fig. 1. C). There-

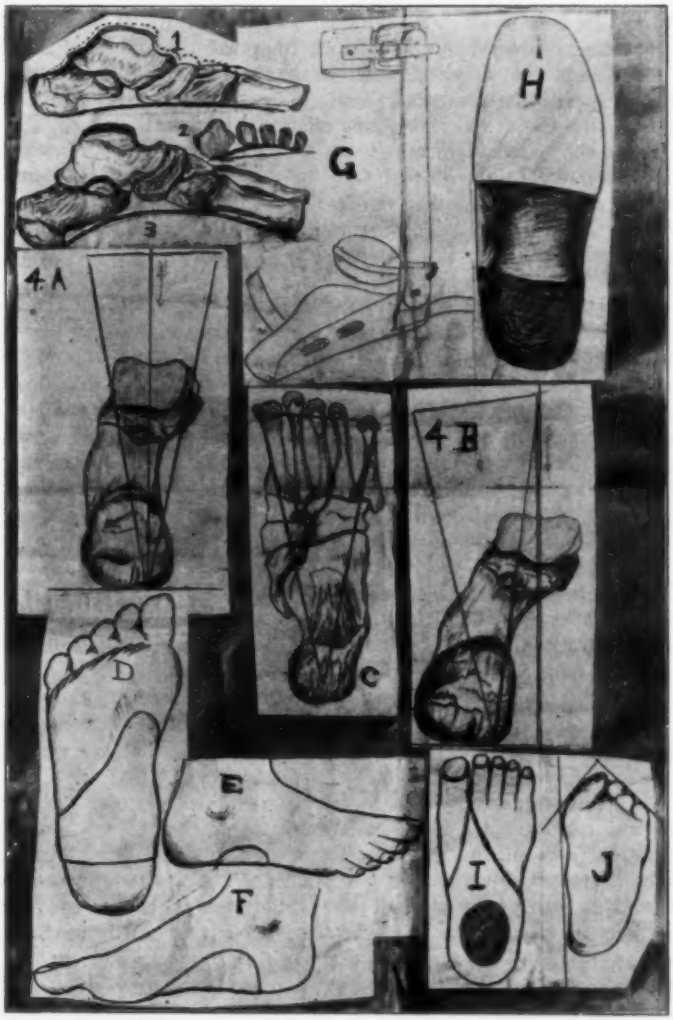

Fig. 1.—1, diagrammatic broken arch. 2, transverse arch (normal). 3, normal arch (longitudinal). 4. A, normal position left os calcis; B, os calcis of pronated foot; C, weight bearing points of triangle; D, E, F, three views of Royal Whitman arch prop; G, paralytic flat foot brace; H, Galloway shoe; I, sandal wearing foot; J, "tooth pick" shoe results.

fore, in standing or walking, the superimposed weight is thrown on these three points, which, if connected by inelastic structures, would not

change in their relations one to another. But it is here that elasticity of structure prevails to the extent of allowing the base of the triangle to spread and to recede from the apex slightly, as the full force of weight bearing is applied. Furthermore, so long as the astragalus maintains its proper relations to the calcaneum, and the foot is directed straight forward so that it is in line with the long axis of the leg, just so long is the weight bearing directed in a line drawn from near the middle of the base of the triangle to its apex, and the impact of the force is diffused throughout, the elastic arches thereby preventing any jar to the superimposed structures, viz., the limbs and body as a unit.

These bony arches are reinforced by ligaments, fascia and muscles, which are now to be considered as briefly as possible for a good understanding of the subject. The reinforcing ligaments are so complex that they may be briefly described in groups, viz., interosseous and plantar, and, as detail would be tedious, it may be said that they are so attached between the bones as to bind the arches in place, much as the arch in a bridge span is held by the network of rods and braces between the fixed masonry of the piers. The most important ligaments concerned are the inferior calcaneo-scaphoid and the calcaneo-astragaloid, the latter doing more to keep the keystone (astragalus) of the arch in place than does its fellows. The muscles concerned are those generally occupying the plantar portion of the foot, and, in addition, the tibialis posticus and peroneus longus, all the muscles acting to flex the toes and assist in preserving the longitudinal arch, while the transversus pedis assists in maintaining the transverse arch in position during rest.

The action of the peroneus longus, as described by Morris, is, in part: "By drawing backward and outward the base of the first metatarsal bone it tends to render more concave the anterio-posterior (longitudinal) and transverse arches of the foot. In the former action it assists the tibialis posticus." According to the same author, the action of the tibialis posticus is "to support the longitudinal arch of the foot, first, by drawing backward the lower part of the scaphoid and so preventing the descent of the head of the astragalus between the scaphoid and calcaneum, and, second, by its traction on the other tarsal bones on which the secondary offsets of its tendon are inserted."

The plantar fascia is a dense fibrous sheet arising from the under, outer and inner surface of the calcaneum and is attached to the various structures, bony and ligamentous, about the transverse arch, forming a strong aid to the other structures mentioned. The sole is protected from jar by thick pads of fat encased between fibrils of connective tissue running from the plantar fasciæ to the skin, these latter fibrils serving two purposes, first, to keep the mesh of fatty pads in place and, second, to prevent the dense skin of the sole from moving to any great degree on its underlying structures. These pads are thicker over the three points of pressure mentioned above. The innervation and blood supply of the foot will not be considered, as only the anatomy, from a mechanical standpoint, is necessary to an understanding of the altered conditions present in flatfoot and other arch deviations.

Flatfoot is a deformity characterized by marked pronation of the foot, with obliteration of its longitudinal arch, and is accompanied by abduction of the forefoot or front part of the foot (Fig. 4). The weakened foot is often the forerunner of flatfoot and is that kind of a foot which habitually assumes a faulty position of eversion and abduction of its fore part under weight bearing, with some prominence of the inner malleolus.

Within certain limits the normal foot under weight bearing assumes this position to a degree, but beyond a certain limit the direction of weight bearing continued in the direction of the long axis of the leg

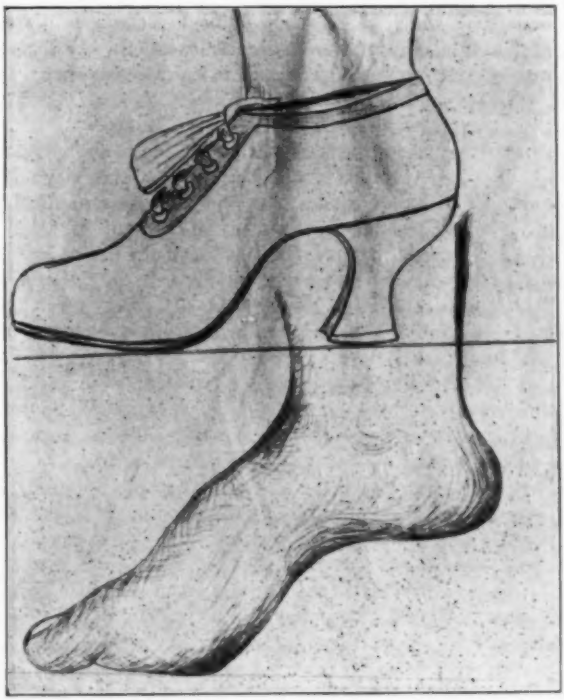

Fig. 2.—Upper illustration, high French heel; lower illustration, relative position of foot in such shoe, showing tendency to shorten tendo-Achilles.

passes through the astragalus and to the inner side of the inner border of the heel, and inward rotation of the arch structures results with breaking down of the arch itself (Fig. 1, 4 A and B).

The action of the leg and thigh assists this materially, viz., when the weight of the entire body is thrown on the limb, the foot being planted firmly on the ground, the whole limb rotates inward from the hip, the inner malleolus makes an excursion inward, downward and backward, and the foot rolls to the inner side, as described above. When the muscles

and ligaments opposed to this rotation, become inefficient from any cause, then the deformed condition results.

Dane, in Orthopedic Transactions of 1897, has well described the conditions in his conclusions, which I shall here quote: 1. In pronation of the foot, the greater part of the foot remains stationary and the leg rotates on it. 2. In addition to the generally recognized motion of the malleoli inward and slightly downward, the normal outward rotation of the tibia and fibula is replaced by an exaggerated rotation inward which takes place about a nearly vertical axis located near the inner border of the tibia. 3. These changes, acting together, produce an alteration in the obliquity of the axis of flexion of the ankle joints sufficient to destroy the mechanism by which the normal joints are enabled to support the body weight, with a minimum of muscular exertion. As a consequence, flexion must be prevented and equilibrium maintained wholly by muscular force, which soon leads to irritation and fatigue of all the muscles of the lower leg, and especially of the peroneus longus. 4. This inversed rotation of the tibia interferes to a great extent with the operation of the mechanism by which complete extension of the knee should lock the joint and render it proof against the constant tendency of the body weight to flex it. The knee must, therefore, in subjects with pronated feet, be kept in extension by a constant exercise of muscular force, which results in the fatigue and tendency to tonic spasms of the muscles of the thigh. This is shown, also, by the extreme tenderness often found over the point of insertion of the internal hamstring muscles on the inner tuberosity of the tibia. 5. Owing to the constant attempt of the muscles on the outer side of the thigh to prevent the internal rotation of the lower part of the leg, they are commonly found to be tense and sensitive to pressure. 6. To try and compensate for this inversed rotation of the tibia and fibula, there is an exaggerated inward rotation of the femur. This, in its turn, overstretches the external rotaters of the hip, as shown by sensitiveness to pressure and tonic spasms of the glutei and tenderness over the points of exit of the sacral nerves. 7. This explanation is wholly in accord with the clinical fact that when we have, by means of efficient mechanical support, prevented the "pronation of the foot," we have relieved the pains in the calf, knee and hip.

Flatfoot may be congenital or acquired. As a congenital condition, it is not so very rare. Kustner reported 13 cases in 150 new-born children (8.6 per cent.) in which the condition was marked. Adams found 42 cases among 764 cases of congenital deformities of the feet. Of these latter cases, 15 were of the right, 10 of the left and 17 of both feet. The anatomic characteristics of congenital flatfoot do not differ from the acquired and show marked pronation and inversion of the foot relative to the long axis of the leg. This is further illustrated by the fact that the bones show but little alteration in shape, as is the case in adult flatfoot.

Rigid flatfoot is a condition in which the astragalus is dislocated inward until it has slipped off the os calcis and the os calcis is itself tipped inward, and the forefoot forms an obtuse angle with the tarsal portion, being fixed in this position by adhesions and changes in the ligamentous

structures. This variety, while appearing of poor promise, is yet not difficult of correction under anesthesia and suitable manipulation combined with operative procedures on the tendo-Achilles (Fig. 4).

Flexible flatfoot. E. H. Bradford (*Am. Journal of Orthopedic Surgery*), in an article entitled "A Consideration of Flexible Flatfoot," calls attention to this, as a variety, in contradistinction to rigid flatfoot, and defines the difference in treatment. Flexible flatfoot deviating in arch conditions from normal is, of course, much more amenable to plate correction than are rigid feet. As to the paralytic, traumatic or other forms of flatfoot, they differ only in the plan of corrective procedure, mechanical measures being adaptable, with slight variations, to the particular case.

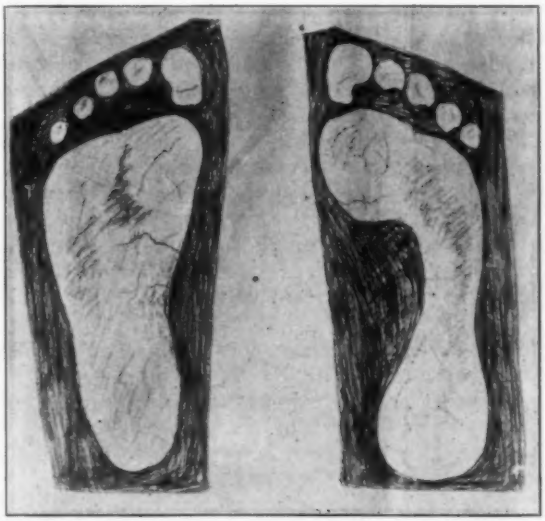

Fig. 3.—1, flatfoot imprint; 2, normal imprint.

ETIOLOGY.

Bradford and Lovett give the following: 1. Boots of improper shape. 2. Weakness or insufficiency of the muscles resulting from (a) long standing, especially on hardwood floors; (b) rapid growth; (c) poor health or muscular debility; (d) convalescence from acute illness; (e) accident or injury causing disuse of limb and subsequent muscular weakness. 3. Excessive strain, as in the case of professional strong men and jumpers. 4. A shortened condition of the gastrocnemius muscle, as described by Schaffer. Unless dorsal flexion of the foot beyond a right angle is possible, it is impossible for a person to complete the step with the leg straight behind him and the foot pointing forward; eversion of the foot is necessary, and a completion of the step by rolling over on the inner side of the foot. This tends to produce pronation habit and breaking

down of the arch. 5. Rickets, mostly observed among children. 6. Infantile paralysis. 7. Direct traumatism. 8. Locomotor ataxia and similar organic nervous diseases. 9. Gonorrheal rheumatism. 10. Rheumatoid arthritis.

Considering improper footwear as a cause, what was the probable condition present in aboriginal people who wore no shoes whatever? Investigation shows planus to be a rare condition among the Indians of North America, who live out of doors, hunt on foot, and have no more restriction to natural foot action than that of easy-fitting, soft-soled moccasins, which allow exercise of the sole muscles in flexion and also call on the peroneus longus and tibialis posticus to do service actively in maintaining the arch. An examination of the ancient records of Egypt and other countries where sandals were commonly worn shows particularly the freedom allowed the toes. I have reproduced the drawings to illustrate this (Fig. 1). The thongs passing between the toes do not prevent full extension and the flexible sole permits of a moderate degree of plantar flexion. The latitude of abduction allowed the great toe and smaller toes is worthy of note.

In children previous to the shoe-wearing period, the flexibility of the forefoot is a marked contrast to the shoe-wearing adults in this direction. Babies can, and do, go through a gymnastic exhibition with the toes and forefoot that simulates that of the hand, and it only requires training to perfect them in grasping objects with the toes, much in the same manner that the fingers are so used. In fact, the Japanese acrobat displays remarkable dexterity in this regard by the great flexor strength of his forefoot (Fig. 5).

Dr. Phil Hoffman, of St. Louis, took advantage of the World's Fair in that city to examine critically the feet of those aborigines known as the Central African and pigmy groups furnished by the Philippine exhibit. In a very complete article in the *American Journal of Orthopedic Surgery*, October, 1905, he shows, by many photographs and drawings, the positions in standing barefoot and in using the feet to climb and grasp objects, etc., and also the effect of shoes on these feet, all tending to confirm the views expressed above. He found absolutely no symptoms referable to arch deviation, regardless of the type of arch among these barefooted people.

What does the average modern shoe do to impair flexor function? In the first place, it binds the toes closely together, often displacing the great toe toward the middle line and by compressing from the outer side crowds the small toe and its mates toward the middle line into a position directly opposite to that observed in the infant (Fig. 1 J). This faulty position, found usually at puberty, has occurred gradually as the shoe has changed according to the degree of fashion. The sole of the shoe is often rigid and, especially at its anterior portion, the arch is too narrow transversely and the shank or heel-encompassing part is too flexible; add to this an elevated narrow heel, ready to topple to either side, as the mechanical conditions present may determine and the effect is complete.

The constricting modern shoe, therefore, is a causative factor in that

it prevents or removes the necessity of active flexion of the forefoot in walking, producing thereby a weakening of the musculature, which is so essential to the maintainance of the natural arch, as well as placing beneath the calcaneum an insecure prop for the heel.

When we consider weakness of the muscles concerned, from the various causes asigned, we can also say that they are often predisposing causes and that the improperly shaped shoe is an exciting cause. The shortened gastrocnemius, rickets, infantile palsies, rheumatism and other causes given could not act, if proper treatment had been commenced early, when

Fig. 4.—Severe congenital flatfoot.

the deformity was in its incipiency and continued until as full correction as possible had been obtained, and then preserved by a proper shoe.

As to the changes of anatomic relations in the bony structures of the arch, we may consider them under pathologic anatomy.

PATHOLOGIC ANATOMY.

As has been said, little change occurs in individual bones in congenital flatfoot, even of marked degree, and the same can be said of acquired flatfoot in all except the severe cases, approaching the rigid type. The

astragalus is turned obliquely to one side and downward, the end (heel) of the os calcis may be raised slightly, the scaphoid is rotated on its central axis, its outer border becoming more prominent, while its inner border is depressed, the bones of the front foot all rotate on the valgus and are abducted. This is the position of the foot at rest, and it is exaggerated during weight bearing (Fig. 6). The astragalus is the key to the arch, and, having no muscular attachment, its position depends on the ligaments binding it in place and also on the peroneus longus and tibialis posticus and thus on the integrity of those bones with which it articulates, particularly the scaphoid. In very severe cases of acquired flatfoot, slight bony changes may occur. The external malleolus may be somewhat flattened and rounded and the scaphoid may suffer extreme dislocation and an osseous deposit may prevent the normal play between scaphoid and astragalus. The shoe worn by a flatfoot patient tells its own tale (Fig. 5). Observe the worn place at the heel and sole of shoe. The heel of the right shoe is worn off at its right posterior edge and at its left anterior edge and the sole along its inner border. These worn places are caused by the abducted position of the foot when the heel impinges on the ground, and, as the step proceeds to completion, the foot assumes the valgus position more and more as weight is applied, and the inner border of the foot being walked on the inner anterior edge of the heel and sole are used to complete the steps, the foot finishing the step in a position of abduction and pronation.

DIAGNOSIS.

A simple method of determining flatfoot is blacking the bared sole with lampblack and having the patient walk on white paper, the imprint being compared to one of normal contour. A similar plan is to use tr. chlor. iron on the sole and while the imprint is wet sprinkle on tannic acid, giving a permanent black print. All are familiar with the contour of such an imprint, the hollow of the foot having a clear place between the heel and forefoot on the inner side in normal specimens (Fig. 3). In flatfoot, according to the degree of deformity, the clear space is more or less encroached on, as shown by the imprint. A clearer and more accurate method is to have the patient stand on a small low table the center of which is made of heavy plate glass, and by placing a mirror beneath the table the reflection of the sole is observed. The normal foot will show an anemic appearance of the skin, whiter where the pressure of superimposed weight is greatest, and this whitish area corresponds to the lampblack imprint, the flatfoot showing, of course, a larger area of whiteness. Inspection of the foot shows also eversion of the heel. A bulging of the inner border of the arch corresponds to the astragalo-scaphoid articulatin. By such simple measures and the history of a train of symptoms, as hereafter to be enumerated, the diagnosis is conclusive. As to diagnosis in infants, we have this to bear in mind, that almost all infants appear flatfooted, but this is due to the fact that infants have an extra quantity of fat in the pad beneath the arch, giving a planus effect to the sole. Palpation will determine the true condition. As, however, the deformity would have to be one of considerable valgus, in order to attract attention

at this prewalking period, we are not apt to have such patients come to us. Very fat infants, especially those attempting to walk early and those having any degree of rickets, are apt to develop flatfoot. This is especially so where any tendency to knock-knee exists. The posture of such children is peculiar, the feet are held apart and the forefoot is everted when standing, the knees slightly flexed, and they stumble and fall much more frequently than other children in learning to walk. It is a condition of disproportion between weight and muscular ability, and may be further aggravated by the fact that the navicular and cuneiform bones are not completely ossified when walking is begun, thereby producing some bony changes as to articular facts.

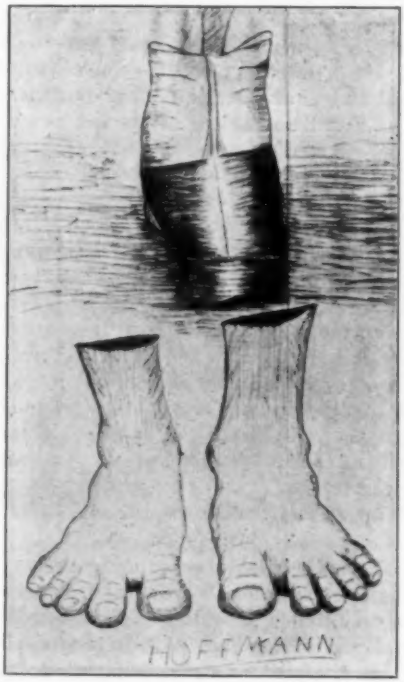

Fig. 5.—Upper picture, rear view of shoe worn by flatfoot patient; lower picture, strong feet of Bogobo native—bare-foot race.

SYMPTOMS.

These are of all grades, from very mild symptoms of discomfort up to actual inability to walk owing to pain of a severe character. The pains are more severe in certain definite locations, marked usually by certain points that are found to be tender on palpation. These are:

1. One each at the base of the first and fifth metatarsals.
2. At the astragalo-scaphoid articulation at its inner border and just in front of the internal malleolus.

3. The under surface anteriorly of the os calcis (heel pain).

4. The muscles of the calf, especially at the site of origin of the peronei.

5. About the knee-joint, especially at the insertion of the internal hamstring.

6. About the insertion of the glutei.

7. In the course of the sacral or great sciatic nerve from its exit to about the center of the thigh.

8. At the sacro iliac and sacro lumbar joints.

There is general aching and fatigue of the entire lower limbs, not otherwise definable. In addition to these symptoms, the feet become swollen after moderate walking or standing and are bathed in clammy cold perspiration, with a tendency to venous congestion.

The flatfoot patient acquires habits which grow with his or her disability, and these are to ride when once he walked, to sit where once he stood; he does not run after a street car nor run upstairs; in fact, he comes to recognize that the elasticity of his feet is gone and that pain and discomfort follow anything but moderate exertion. Wet weather usually aggravates the symptoms; hence the error of rheumatic diagnosis. When the subject is off his feet and at rest, the symptoms are quickly relieved, and in moderate cases the patient experiences ease in walking during the morning hours, with gradual acceleration of symptoms as the day progresses. In severe cases the patient may suffer considerable pain when first putting weight on the feet after rising. This is explained by the fact that the partially dislocated tarsal bones have assumed nearly the normal position during the night and are again displaced when weight bearing commences. Cramps in the leg and thigh muscles are not unusual during the night, following a day of considerable walking. The shuffling gait with knees slightly flexed and body thrown forward with each step, an attitude of cautious progression, is characteristic of these patients. The symptoms of weak arch without planus are much the same (see Fig. 5, upper half).

PROGNOSIS.

Prognosis is almost invariably good under proper treatment, mild forms do not tend to spontaneous correction, but may cease to produce symptoms sufficient to disable, providing the foot is not taxed greatly by long-continued walking or standing. All degrees of planus, even when the tarsal bones are displaced or dislocated, yield to proper treatment, even when the condition has existed for years. The prognosis of paralytic and rheumatic varieties depends on the severity of the causative factors and the probability of their continuance. The paralytic variety is usually amenable to surgical measures combined or followed by mechanical support of permanent character.

TREATMENT.

The treatment of infantile cases will be first considered. Here we have to do with the beginning deformity, say at the early shoe-wearing period. Should it be our good fortune to be called now, we may save much parental anxiety. Simple measures usually suffice to check the

foot error and are covered by the principles of correction of deformity, support of the arch and ankle joint and maintenance of equilibrium when once attained. A shoe should be selected that gives freedom to the toes and should be practically straight on the inner margin from the heel to the end of the great toe, its outer side conforming to the shape of the foot, without exerting lateral compression of the lesser toes. The counter or heel encompassing portion should be moderately firm. The shoe should lace and extend above the ankle joint one or two inches. It has been advised to raise the inner border of the sole and heel one-eighth to one-fourth of an inch to prevent pronation, but if this be done the foot continually tends to slide to the outer side and the shape of the shoe and its mechanical support are soon lost.

As the muscles of the sole, together with the peronei and tibialis posticus are so vital to the preservation of the arch, certain forms of gymnastic exercises are conducive to the cure. These exercises should be

Fig. 6.—Eversion of fore-foot with partial dislocation of navicular and astragalus.

taken with the shoes off and no other covering to the foot than the stocking and serve the purpose best when systematically gone through with. The patient stands, feet turned out, and rises slowly on the toes, turns out the heels and allows them to sink slowly to the floor. The patient should repeat this twenty-five times each day, increasing the daily number gradually until he can do it 150 times. Another method is to have the patient walk a given number of steps with the feet in a position of talipes varus. Passive manipulation, massage, hot foot baths followed by cold douches to the feet are all of service in increasing the circulation and stimulating muscular tonicity. In addition to mechanical support, the patient should be taught to finish the step with the toes when walking, and not with the inner side of the sole.

Infants are best treated by placing a pad of felt on an insole to raise the arch to its normal position, then with the shoe described having a supporting effect to the muscles acting ligamentously to the ankle joint,

by its lacing, the correction is maintained. Flatfoot or pronate-footed infants, and especially fat or overgrown ones, must not be put into slippers or moccasins with the idea of allowing Nature to take care of them, for it must be remembered that it is a weakened musculature and undeveloped bones that are at fault. Older children with moderate planus can have much the same treatment, or, in addition, an arch prop of celluloid, to take the place of leather and felt.

In flatfoot of the severe variety, several operations have been devised to correct the weakened function of the tibialis posticus and peroneus longus muscles. Muller (*Journal Am. Med. Asn.*, vol. xl, p. 613) recommends the following: He detaches the tendon of the tibialis anticus from its attachment and carries it through a hole bored in the scaphoid, fixing it by wire sutures on the under side of that bone. This is presumed to act as a suspending ligament to the arch. He emphasizes the necessity of cutting the tendo-Achilles as an indispensable preliminary to this operation evidently with the idea of releasing the posterior portion of the arch from the extensor force exerted by the tendo-Achilles and thus gives the muscle of the calf a chance to regain tone.

Nicolandi is given as authority for an operation where the astragalus is displaced downward to the extreme degree. He splits the tendo-Achilles and attaches its outer half to the tendon of the tibialis posticus. This lessens the vicious action of the tendo-Achilles by forcing the head of the astragalus downward when the weight of the body is borne on the forefoot in finishing the step. This operation is preceded by an arch prop fitted after correction and is done to assist the arch prop in preserving the arch without an opposing force. In severe cases he advises tenotomy of the tendo-Achilles as a routine procedure to give the peronei and tibialis anticus opportunity to regain their tension. Of course, the tendon operations are all followed by fixation in correction by the use of plaster of paris.

For weakened arches and planus it is a good plan to use adhesive plaster as a corrective; also felt or graded leather arches under the hollow of the foot preliminary to the arch prop I am about to advocate (Fig. 1, D, E, F). In my opinion, no device meets all the requirements so nicely as does the Royal Whitman arch supporter. Dr. Whitman devised this prop to meet the following conditions, viz.: 1. To sustain the long arch. 2. To hold the entire middle foot in a moderately firm grasp, thereby preventing spreading when the arch is raised or held by the prop. 3. To prevent pronation when the weight bearing is applied. 4. To prevent the bulging outward and downward of the head of the astragalus and of the navicular.

These plates are made of 18 to 20 gauge steel, lightly tempered, nickel-plated over copper to prevent rusting, and, although not absolutely rigid, they are sufficiently so to bear the weight and not alter in form. I have, however, adopted German silver, 18 English gauge, as it is practically non-corrosive and can be worked into shape cold, requires no nickeling or tempering and is practically indestructible. To secure these arches to fit the foot properly, a cast of the affected foot should be made. Dr. Whit-

man recommends the cast of the entire foot and, in his work on "Orthopedic Surgery," describes the method of preparing such a cast. It should stand upright without tipping to either side. I have found that considerable practice is required before a true cast can be obtained. In making these casts the chair is lowered or raised to suit the individual and to allow the foot to sink lightly into the plaster. The leg is perpendicular (Fig. 7) and the foot is at right angle to the leg. This gives a good working cast after a small amount of experience in making them. This cast should be scraped away carefully at the hollow of the arch in order to exaggerate it, so that the prop, which is made to fit the cast, may have correction value. Here, again, must caution be observed else too much correc-

Fig. 7.—Method of making cast of foot.

tion will be attempted. In severe cases an arch prop made too high will cause a great deal of pain in the astragaloid region from pushing this bone and the scaphoid beyond moderate correction. It is better to correct the arch moderately at first and then add from time to time thin layers of leather under the hollow of the foot to gradually bring the arch to its normal position. A better procedure is to reform the German silver arch prop to give greater correction from time to time, according to the flexibility of the particular foot being treated. The support of the arch by this method is successful also in certain conditions, not flatfoot, but which I here call arch deviation, viz.: 1. Following Potts' fracture. 2. Injuries to arch ligaments. 3. Tarsal rheumatism. 4. Temporary support for

persons commencing an occupation which requires them to be on the feet on hard floors for long periods, as nurses in hospitals and attendants at asylums, institutions or floor walkers and clerks in stores, until they are accustomed to their new occupation. 5. Rupture of internal lateral ligament. 6. Pronated foot of ataxic patients.

A few cases will illustrate these uses of the props.

Case 1.—Miss C. W., age 30; height, 5 feet 11 inches; weight, 230; attendant at state insane asylum; gave history of gradual incapacity for past year. She was about to seek another form of livelihood, when her physician, Dr. S., heard of the Whitman arch props and sent her to me. Left arch partly broken with usual forefoot eversion and inward rotation of calcaneo-astragaloid articulation. Foot fitted with Whitman German silver prop with complete relief. Right foot also gave trouble, but with no skeletal anomaly. Fitted right foot with a celluloid prop (experimental), complete relief; then made German silver for right foot after same pattern.

Case 2.—Mr. L., railway employé; age, 48; height, 5 feet 7 inches; weight, about 150. Caught right foot between planking and steel rail and fell to right, rupturing internal lateral ligament and astragaloscaphoid ligaments. Arch flattened, foot painful sixty days after injury; disability, 60 per cent. He was Dr. Eckard's patient and I was called by the doctor in consultation. I recommended adhesive plaster strapping in correction. This gave immediate relief and patient promised to return for cast of foot. Did not return for three weeks, as he said the adhesive plaster relieved him. I made a cast and a Whitman arch prop of German silver with moderate correction, which gave immediate and permanent relief.

Case 3.—Mr. O. M. K.; age, 35; history of severe flatfoot from early childhood. Examination of foot showed the arch to have passed completely over and to be actually convex. Foot rigid, with forefoot everted at an angle of 35 degrees, with a portion posterior to internal malleolus. Recommended operation for correction, but he was not willing to have it done and wanted to try an arch prop. I made him a German silver Whitman prop, with three-sixteenths of an inch correction, which he is wearing at present writing, with considerable relief. This case should, of course, be operated on.

Case 4.—Miss I. L., nurse, aged 27, height 5 feet 8 inches, weight 125, was injured in right arch by grindstone falling on arch of foot at junction of second cuneiform with scaphoid, an exostosis being present. Foot since injured in same location twice. Examination showed arch almost perfect, but forefoot slightly pronated. Was suffering severe pain on walking. Dr. Robert Hanna having called me in on this case and wishing a prop made for her, I took charge without much hope for relief. A celluloid prop without correction gave immediate relief and she now wears a German silver plate, which, I think, she can eventually discard when the inflammation of the joint has subsided.

Case 5.—Miss A. G., nurse, height 5 feet 8 inches, weight 170, commencing third month of duty in hospital. Suffered severe pain in trans-

verse arch as well as long arch. Examination shows no pronation, no loss of arch. Celluloid prop made without correction to be used until accustomed to duties. Immediate and permanent relief. She is now able to go without support.

Case 6.—Miss W., nurse, commencing third week of duty in hospital. Age about 28, height 5 feet 8 inches, weight 168. Examination showed normal right arch. Left arch broken, about 20 per cent. from normal, with the usual pronation. Foot flexible. Celluloid arch prop with about 10 per cent. correction and increased in three days to 15 per cent. correction brought complete relief. This case will probably require a German silver prop for left foot. Prop of celluloid is worn on right foot without correction and gives relief very well. German silver props are being made for her. (Later— She now wears them with perfect satisfaction.)

Fig. 8.—Flexible, weak, pronated feet.

Case 7.—Mr. H. U., age 32, height 5 feet 10 inches, weight 127, barber. Stands at his chair so that the left foot takes all his weight. Examination shows arch fallen about 15 per cent., with some pronation. He complains of pain in the arch and at the base of the small toe from pressure of the shoe. The right foot is slightly affected. The left foot is flexible and a celluloid prop gives relief with 10 per cent. correction. He says he can stand full correction. German silver props made with full correction and complete relief.

Case 8.—Baby G., age 14 months. Dr. Robert's case, referred to me. Pronounced congenital valgus on weight bearing. Celluloid props were put on with full correction, as the foot was freely flexible. The baby walks now well, whereas before she rolled on her feet and often fell.

Case 9.—Miss H. H., age 25, height 5 feet 9 inches, weight 170, dress-

maker. She has been treated at Hot Springs for rheumatism of the feet and also by many physicians for the same alleged complaint. Duration about 4 years. She gives this description of her foot trouble: "My feet are not troublesome when I am not using them. I was benefited by baths, as I rested almost all the time, but pain returned in two weeks after I commenced walking again. I am all right on arising. The pain commences about noon and I can not by night walk." She finds comfort in standing in the varus position. The heels are run over to the outside through attempts to walk in this position. The forefoot is pronated and the astragalus is moderately depressed, especially in the right foot. Celluloid props made in moderate correction gave immediate relief. She reports having great comfort after two weeks. German silver props are now worn.

I am indebted to Dr. E. H. Bradford of Boston for my knowledge of celluloid for this form of work, and have found that, as he says, it can not be used as a permanent support for persons other than children or light adults. I find it especially adaptable for them and as a trial support and temporary relief while metal props are being made for heavy persons. It is serviceable also in cases, such as Nos. 1, 5 and 6, for temporary relief until accustomed to duties of new occupation. Dr. Bradford informs me that many persons prefer the celluloid on account of lightness and elasticity, coming back for new ones when broken or to have the old ones remolded when bent down.

I have called your attention heretofore to the proper shoe, and I now present a drawing of the bottom of a shoe known as the Galloway pattern. Notice two things about the heel of this shoe which contrast markedly with the worn shoe here presented, viz., the nails in the heel to prevent the wearing out of the outer posterior edge, and the projecting inner anterior edge of this Galloway heel. This prevents the rolling motion, which induces pronation. Notice also the square toe room effect. Such a shoe tends to prevent pronation and is correction in itself in mild cases if assisted by a raised insole or felt or graded leather strips (Fig. 1, H).

Dr. S. I. Schwab and N. Allison (*Journal Am. Med.*, Dec. 16, 1905), give an experience of fifteen cases of tabetic foot error in which a special shoe, something on the order of the Galloway shoe, was used, combined with arch prop of metal or a cork substitute to prevent pronation and eversion due to muscular hypotonia. The shoe also had transverse cleats, such as runners use, to give a firmer grasp to the ground. These patients all experienced greater security in walking and in many cases lost the pain in the legs, knees, etc., which accompany faulty weight bearing. Great credit is due to any one giving aid to these unfortunates.

There are certain nerve-grafting operations for the cure of paralytic varieties, all being performed to restore muscle function. These have met with encouragement, though they still form an undeveloped and incomplete part of our art. It is to be hoped that further research will enable us to restore function to groups of muscles merely lacking ennervation and thus relieve the many who are suffering from drop-foot palsies, with pronated weak arches, and are obliged to rely on mechanical support.

Paralytic deformity apparatus exists in many forms, and may be selected for the individual need. Unless the flatfoot condition is very severe, it seems advisable to correct under anesthesia, in fact to correct at one sitting, and then to place the foot in plaster of paris, rather than to proceed by stages of correction. It may be found necessary in old rigid varieties to use the Thomas clubfoot wrench.

In conclusion, I wish to place myself in accord with the opinion expressed by Dr. Hoffman, of St. Louis, in the paper above referred to, in this regard, viz., that "the impression records of the longitudinal arch, commonly made by surgeons, are apparently of no value in the diagnosis of so-called flatfoot whose symptoms are dependent on a weakened arch and not on its lowness, except in so far as this lowness is a transition from an original higher condition with concomitant change in the relationship of the tarsal bones and strain of ligaments and muscles." He has found such symptoms in high arches, so have I, and, as he says, "it is equally as common to find low arches in symptomless feet" (Fig. 2). Furthermore, in women, the high French heel is accountable for shortened gastrocnemei, with consequent depression of the anterior part of os calcis and loss of the dorsal flexion function, which will cause symptomatic foot troubles, relieved by arch support; possibly (in extreme cases) a tenotomy of the tendo-Achilles being a necessary accessory to treatment.

I believe that planus is a far more common foot error than ordinarily supposed and that close observation will lead to the discovery that it is the cause of many lame feet. In the light of our present knowledge, few, if any, of these cases need go unrelieved, and, although the necessity of wearing an arch prop may become a habit, yet, if pain and discomfort are abolished, these people have cause to be thankful for the relief obtained in so simple and permanent a manner.

DISCUSSION.

Dr. Edward H. Ochsner, of Chicago:—I had hoped the essayist would be able to outline his method of treatment, but I take it that he uses a method of treatment which is generally employed, namely, the use of a foot-plate. When a foot-plate is used over a cast the objection is that the patient would be weaker at the end of three months than he was in the beginning. A plate in many cases affords very good support, it relieves pain, but does not cure the condition. When a plate is made, as so many of them are, according to the instructions of the surgeon, the patient is privileged to go to the instrument-maker, and the chances are the plate is worse than useless. I have taken many plates out of shoes where the patients complained more with them than without them. For the last eight years I have been using a method of treatment which is not open to the objection I have just made, in that it does not aggravate the condition. I have used a system of strapping, which actually cures the condition. That it cures the condition I have proven over and over again, by the relief of pain, by the greater endurance of the patient, and by the fact that a flat-foot imprint of a foot which I correct will change gradually to the imprint of the normal foot. The system of strapping I employ is a modification of the so-called Gibney strapping for ankle sprains, and, so far, I have only come across one case that has not been relieved. The majority

of cases have not only been relieved of pain and other symptoms, but of the flat-foot condition, as proven by the imprint on carbon paper.

Dr. John E. Allaben, of Rockford:—Dr. Ochsner speaks of a modification of the Gibney method. What is the modification?

Dr. Ochsner:—I simply bring the straps around on both sides and make them narrower than the Gibney straps.

Dr. George W. Nesbitt, of Sycamore:—I would like to add to what has been said in regard to Dr. Lucas' paper that I have employed special strapping, according to each case, depending upon the condition of the patient, etc. I also find that with the strappings I get better results by building up the inside of the sole of the foot, extending it from one to two thicknesses of ordinary sole, gradually grading it off to the outside, so that the outside of the sole is of the same height as the original sole was.

Dr. John E. Allaben, of Rockford:—I would like to ask a question in reference to the strapping method of treatment. Are electricity and massage used in any of these cases, and can they be employed with the strapping method?

Dr. Lucas (closing the discussion):—In regard to the statement made by Dr. Ochsner that a foot-plate does not cure the deformity, I wish to say that my experience has not been sufficiently long enough to enable me to tell whether such a plate will cure the deformity or not. I should imagine that it does not. In reply to the question of Dr. Allaben, my treatment includes massage and electricity, with certain exercises, walking in the varus position, with the foot bent in, all of these things being adjuncts, as well as the strapping which Dr. Ochsner spoke of. Strapping is a good preliminary to the taking of the cast. Dr. Royal Whitman makes a cast of the entire foot, with the patient sitting with the legs crossed. I have my patients sit in the chair on top of a table, and screw the chair up or down, according to the height of the person, and allow the foot to sink into the plaster, the foot being held at a right angle to the leg, and the leg at a right angle to the thigh. In this way I get an exact impression of the shape of the foot.

THE RIGHTS AND DUTIES OF MUNICIPALITIES IN REGARD TO INFECTIOUS DISEASES.*

GEORGE W. WEBSTER, M.D.

President of the Illinois State Board of Health, and President of the Chicago Medical Society.

CHICAGO.

I am not unmindful of the honor which you have conferred on me in inviting me to talk to you on this very important subject relating to public health and preventive medicine. I believe that the altruistic ideal is the noblest conception of man, and preventive medicine is its most practical application. The question of the rights and duties of the municipality is one of the important questions in state medicine.

WHAT IS STATE MEDICINE?

While definitions may seem trite, I find that there is a general want of knowledge in regard to what really constitutes state medicine. State medicine may be defined as the connection of the state with the branch of science which relates to the prevention, alleviation or cure of the dis-

* Read at a meeting of the Warren County Medical Society, held at Monmouth, April 6, 1906.

ease of the human body. It is "the application, by the state, of medical knowledge to the common weal, and embraces every subject for the comprehension of which medical knowledge and for the execution of which the legislative and executive authority of the government are indispensable." The authority of the state is the inherent plenary power which resides in the state to prohibit all things hurtful and to promote all things helpful to the comfort and welfare of society. It is a part of the general "police power" of the state.

The work of state medicine relates to medical education, quarantine, sanitation, education of the people in sanitary laws, the organization and maintenance of institutions for the sick and infirm, hospitals, dispensaries and sanatoria, asylums and educational institutions for idiots and feeble-minded children, for mutes and the blind; public hygiene and preventive medicine.

Before proceeding further, I crave your indulgence while I call your attention to a few fundamental propositions; propositions which may seem trite, but will bear repetition. First, then, as to where public health powers are lodged; second, what those powers are, and, third, how they should be exercised; in a word, what is the duty of the municipality in public health matters. In dealing with the first question, it becomes necessary to call attention to a few fundamental principles and distinctions that apply to all forms of government. Obviously, in all forms of government, power must be lodged somewhere, and on the seat of its lodgment depends the form of government. In a pure democracy, all power resides in the people; in an absolute monarchy, it resides in the ruler or king.

Without consuming time to deal with modifications of these two generic forms of government, it may be said that in any form of government the exercise of a power not clearly derived in accordance with the principle just stated is illegitimate and, therefore, revolutionary and dangerous. It follows, therefore, that a public health power, in order to be legal, must be logically and legitimately derived from the source of power existing in the form of government of which it is a function.

All concede that after the independence of the states was achieved and before the formation of the Union was accomplished, all governmental powers of all kinds, including, of course, public health powers, must have resided in the states or in the people thereof. By the adoption of the Federal Constitution, a national government was created, and to it certain powers were delegated, the powers so delegated being specifically enumerated. Unless it can be pointed out in the Constitution that public health powers were surrendered to the national government, they must remain in the states where they originally belonged. It may be safely asserted that no clause in the Constitution can be pointed out that transfers public health powers from the states to the nation; hence, the conclusion is irresistible that they still belong to the states.

The Supreme Court of the United States has affirmed that, while power to regulate interstate commerce does belong to the national govern-

ment, power to regulate public health does not so belong, the two powers being entirely separate and distinct. The Tenth Amendment to the Constitution, adopted soon after the ratification of the states, reads as follows: "The powers not delegated to the United States by the Constitution, and not prohibited to it by the states, are reserved to the states or to the people." In the face of these plain, strong words, and by applying to the above law, we are able to formulate this definite and incontrovertible proposition, namely, that all powers not specifically or impliedly conferred on the national government are reserved to the states. This includes public health powers.

All public health powers are a part of the "police power of the state," and Chief Justice Shaw defines "police power" as "the power vested in the legislature by the Constitution to make, ordain and establish all manner of wholesome and reasonable laws, statutes and ordinances, either with penalties or without, not repugnant to the Constitution, as they shall judge to be for the good and welfare of the commonwealth, and of the subjects of the same."

Ex-Governor Hamilton says, "The police powers of the state are plenary and inalienable, co-extensive with the natural right of self-protection, their exercise is demanded by the 'law of over-ruling necessity;' they are the foundations of all laws and regulations for the well-being or government of the people, and especially of all laws, ordinances, rules and regulations for the preservation of the health or safety of the community." Chapter 24, Section 62, of the Revised Statutes of Illinois gives city councils in cities and boards of trustees in villages the power to appoint a board of health and prescribe its duties and powers, to "do all acts and make all regulations which may be necessary or expedient for the protection of health or the suppression of disease." Concerning the force and effect of this power, the Supreme Court of Illinois says, "When an incorporated city or town has been invested with power to pass an ordinance, by the legislature, for the government or welfare of the municipality, an ordinance enacted by the legislative branch of the corporation has the same force and effect as the law passed by the legislature and can not be regarded as otherwise than as a law of and within the corporation. An ordinance is the law of the inhabitants of the municipality." Judge Dillon says, "Our municipal corporations are usually invested with the power to preserve the health and safety of the inhabitants. This is, indeed, one of the chief purposes of local government."

Prior to the adoption of the Constitution of 1870, the plan of municipal self-government was patterned on that of the New England town meeting, but there was considerable difference in details. Hence, the only special charters of cities which now exist in Illinois are those granted prior to the adoption of the Constitution of 1870. It thus seems to be clearly established that a city is clothed with the power and charged with the duty of doing all things that may be necessary or expedient to preserve the lives of its citizens.

The public control of matters pertaining to the health of the com-

munity is a comparatively new idea and, as Bagehot says, "there is no pain like the pain of a new idea." It seems to run counter to their ideas of what they are pleased to term "personal liberty," and to savor too much of what they call "paternalism." Nevertheless, it is my opinion that what is now done in the way of prevention of disease is the standard by which we measure and indicate the degree of intelligence and progressiveness of a city, and we should do our whole duty, realizing that, even from an economic standpoint, the prolongation of life by the suppression of preventable disease is of much greater value to the state than the cost of the means employed, and also because we realize that to ward off the calamity of disease and to prevent the spread of a pestilence is to increase the sum of human happiness and to elevate the race.

The broad general principle on which all modern sanitary legislation rests is that every member of the community is entitled to protection in regard to health, just as he is in regard to his liberty and property, and that, on the other hand, his liberty and his control of his property are only guaranteed to him on the condition that they shall be so exercised as not to interfere with the similar rights of others, nor be injurious to the health of the community at large.

The sanitary rights of the people depend to a large extent on what Hobbs describes as "that law which men are bound to observe because they are members, not of this or that community, but of a community," and these rights and the obligations connected with them can be defined with reasonable clearness and precision; whence it follows that they are proper subjects for legislation whenever such definitions become expedient.

THE STATE.

The powers and prerogatives of the state governments are much more numerous than those of the national or federal government. The only limitations placed by the Constitution of the United States on the power of a state government are that it shall not exercise any of the powers which have been given exclusively to the United States, and shall not do certain other things expressly forbidden. With these few restrictions, every governmental action is within the power of the state, subject only to such conditions as may be imposed by the people through the provisions of the State Constitution. This right of the state to legislate in regard to public health matters is now generally recognized and seldom questioned. The latest victory in this direction is the recent decision of the United States Supreme Court in favor of the constitutionality of the compulsory vaccination regulation, passed by the town of Cambridge, Mass.; it is conclusive on the legal question involved, while the reasoning, as a whole, may be confidentially accepted for the guidance of legislators and boards of health generally. Jacobson, the plaintiff in the case, pleaded for his "constitutional liberty" which he claimed was invaded. The decision points out the fact that the execution of the law is a reasonable exercise of the "police power" of the state, and his plea for liberty was met with the reply that "persons and property are subjected to all kinds of restraints and burdens to secure the general com-

fort, health and prosperity of the state." The minority should not have the power to dominate the majority when the latter are supported by the consensus of skilled opinion of the medical profession and by the authority of the state. The rights of man and the rights of men are coming more and more to be interpreted in the light of ultimate results and for the greatest good of the greatest number.

Every citizen owes allegiance not alone to the national and state governments, but he also owes respect and obedience to the municipal government of the city, town, county or village in which he lives. All city governments derive their powers from the legislature of the state in which they are situated and they can exercise no power or authority except such as is granted by the legislature creating the city or government. The city government is the agency provided by the state for enabling the citizens of a city to regulate their own local affairs. We thus perceive that all powers emanate from the people, laws are made and executed, courts maintained and every public institution put in operation by the people and with their consent. It is the theory of our government that the source of all power lies in the people who are governed and that they, directly or indirectly, participate in the governing.

Under the provisions of the Revised Statutes, Chapter 24, Section 62, city councils in cities and presidents and village trustees in villages are given the right to appoint boards of health and prescribe their powers and duties. They are empowered "to do all acts, make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease," and to pass all ordinances and rules and make all regulations proper or necessary to carry into effect the powers granted to cities or villages, with such fines or penalties as the city councils or boards of trustees shall deem proper, provided that no fine or penalty shall exceed $200 and no imprisonment shall exceed six months for one offense. Under the provisions of Section 44, Chapter 24, of the Revised Statutes the city council and the board of trustees also have jurisdiction in and over all places within one-half mile of the city or village limits for the purpose of enforcing health and quarantine ordinances and regulations. The matter of establishing quarantine and of placarding infected premises consequently becomes a matter for the discretion of city councils, or village boards, or for the discretion of health officers or boards of health created by cities or villages.

With due consideration for the provisions of the statutes, the state board of health has proposed an ordinance for the protection of the public health for adoption by cities and villages, and in this ordinance the following provisions are suggested as being important in restricting the spread of contagious or infectious diseases and as being thoroughly in accordance with the provisions of the state law: It is made the duty of the board of health to require that all persons, either teachers or pupils, attending schools, shall present satisfactory evidence of proper and successful vaccination. It is the duty of the board to exclude from schools any person suffering with a contagious or infectious disease, or liable to convey such disease. The board is called on to

make or enforce all necessary rules and regulations concerning cholera, smallpox, yellow fever, diphtheria, scarlet fever, and other contagious and infectious diseases, while all public officers of the municipality are commanded and enjoined to assist the board of health in the enforcement of these rules.

It is provided that every householder within the limits of the municipality in whose dwelling shall occur any case of cholera, yellow fever, typhoid fever, scarlet fever, diphtheria, or smallpox shall immediately notify the board of health of the same, and, until permission is secured from said board, no clothing or other property that may have been exposed to infection shall be removed from the house, nor shall any occupant of the infected dwelling change his residence elsewhere, without the consent of the board. All physicians or other attendants on any person sick with any of the above-mentioned diseases shall forthwith report the same to some member of the board of health, and the local board shall at once notify the state board of health.

With such an ordinance conforming in every way with the state law, the local board of health has the authority and power to quarantine, isolate, disinfect, placard, and do any other things which in its judgment will tend to limit the spread of disease. While in a great many of the municipalities of the state an ordinance as satisfactory as this proposed ordinance can not be found, there is usually a public health ordinance having a blanket clause sufficiently broad to permit the exercise of discretion on the part of the board and to permit almost any action essential to meet existing conditions.

According to the act approved May 10, 1901, and enforced July 1 of that year, county and township boards of health are given the right to do all acts and make all regulations which may be necessary or expedient for the promotion of health or the suppression of diseases; to appoint physicians as health officers and prescribe their duties; to provide gratuitous vaccination and disinfection; to require reports of dangerously communicable diseases, and to incur the expense necessary for the performance of the duties and powers enjoined by the board; and, further, to provide penalties for the violation of any of the rules or regulations passed by the board. The board of county commissioners constitutes the board of health in counties not under township organization, and the supervisor, assessor and town clerk constitutes the board of health in counties under township organization. It will be seen from the foregoing that there is no political division of the state of any character whatsoever in which there is no provision for health officers. City, village, county and township are all provided for by the statutes.

In cases of diphtheria, the state board of health recommends (Diphtheria, Its Prevention, Restriction and Suppression, 1903, Page 6) the immediate quarantining of premises and the isolation of the patient. Children should not be permitted to mingle with children or others coming from infected premises. Children from infected premises should not be permitted to attend schools. During the prevalence of diphtheria in epidemic form, public gatherings should be abandoned, and especially

those ordinarily attended by children. It is a wise provision to forbid at all times the use of pencils belonging to schools which are distributed and taken up, being used by a number of different children. If this is permitted at any time, it should be interdicted during the prevalence of diphtheria.

The question frequently arises as to the restrictions which should be placed on adult members in a family in which there are cases of diphtheria. The state board of health recommends that no person from a house where diphtheria is present should attend public assemblies, and particularly that such persons should not come in contact with uninfected children. No person should leave the infected premises without first thoroughly washing his hands, face and hair and brushing his clothing with a whisk broom wet with Standard Disinfectant, No. 3. A person who has recovered from a case of diphtheria should be considered infectious for five or six weeks, at least, and should not during this time be permitted to go to school or to mingle in any way with the public. No person having had diphtheria should be permitted to leave quarantine until the attending physician certifies that there is no further danger of contagion and until the quarantine is declared removed by local health officers.

The attending physician has not, and should not, be permitted to assume charge of the case so far as the relation with the public health is concerned, unless the attending physician happens to be the public health officer. Differences of opinion and conflict can only be avoided in the presence of contagious disease when the attending physician understands that the public health officer or the board of health constitutes the only power authorized to raise quarantine, release the patient or declare disinfection and fumigation satisfactory. All premises in which diphtheria occurs should be placarded by the local health officer, and all children therein confined to the immediate premises, and steps should be taken to prevent all unauthorized persons visiting the premises. Diphtheria should be reported promptly to all public libraries, and these libraries should be instructed not to receive any book or books returned from the infected premises. The closing of schools during an epidemic of diphtheria must remain a matter for the discretion of the local board of health. The school board must obey absolutely the orders of the board of health. Disinfection and fumigation should be done by the local health authorities or to their satisfaction by some competent person to whom they delegate this power. The rules which apply to diphtheria are also applicable to scarlet fever. The rules and regulations for physicians and health authorities in the care of smallpox will best be found in Smallpox, Its Prevention, Description and Suppression, 1905.

In the suppression of infectious and contagious diseases of the state, no point has been more thoroughly impressed on me than the mistake of permitting attending physicians to assume the duties of local health officers. If the attending physician is permitted to dictate the character of quarantine, and to use his own methods in disinfection, he will frequently go further, and the public health officer who is held responsible

by the people for their safety has no means of knowing how well or how poorly this work is carried on. Many persons of wealth and influence desire that exceptions be made in their own cases, that their houses shall not be placarded, that they be allowed special liberties and special privileges, and the attending physician is much more apt to yield to the solicitations of his patient than would the conscientious public health officer.

The local physician should not be allowed to placard the house; he should not be permitted to establish quarantine; he should not be permitted to raise quarantine; he should have it impressed on him that these features of the case rest entirely in the hands of public health officials, and he should be brought to time for assuming the powers of such an official. Every municipality, every county and every township should have rules providing for the immediate reporting of contagious or infectious disease. If this is not done, it will frequently be found that physicians in their desire to gratify their patients will withhold information in regard to contagious disease and the public will suffer thereby.

The laws of Illinois are broad enough and sufficiently elastic to permit the local authorities of almost any section of the state to enact such rules and regulations as may be deemed by them desirable, and the most important feature at this time, in the supervision of the public health of the state, is to induce local authorities to take advantage of the powers granted them by the statutes, and to establish local boards of health. The State Board of Health has repeatedly recommended to the Governor the enactment of laws not only giving to the various political divisions the right to establish boards of health, but making it mandatory on them to do so, and it is probable that effective local health organizations will not be secured throughout the state until such a law is enacted and enforced.

Under existing conditions, however, the failure to establish local boards of health must be laid at the door of the people. With powers so great and so sweeping, there is no real reason why competent local boards should not govern in their protecting capacity every acre of the state of Illinois.

THE IDEAL HEALTH OFFICER.

The rapid increase in our population increases the dangers to the public and increases the degree of skill in competent public protection. The higher plane of general and special education on the part of the people increases the requirements of knowledge on the part of the public health officer. The general appreciation of the value and the necessity of the sanitary protection of the public; all these contribute to the rapidly growing demand for competent and specially educated health officers and the willingness of the people to properly compensate them for their labors. No longer is the municipality content to entrust the lives and health of the people to him who is health officer in name and merely city scavenger in fact and practice. The realization is gradually creeping upon the public mind that the public health officer, entrusted with the health of the community, must not be the professional or intellectual inferior of the one to whom we are willing to entrust our individual

health. The day has practically come when municipalities, awakening one after the other, will insist on having men of special qualifications to guard these things so essential to the health, the life, the happiness and the prosperity of the community.

The acquisition of such special knowledge by men of executive ability as will permit them to take their places as state and municipal health officers, will obviously benefit the public in many ways, nor will such special education be without due compensation for him who acquires it. The people of a republic must "feel before they will see the necessity for action," but the people of the nation have already felt and now begin to see clearly that such competent health officers will afford a degree of protection which, from a purely commercial standpoint, will be exceedingly profitable. Too frequently, pestilential disease, with suffering and death, with panic and stagnation of business, has been the price of the employment of untrained and incompetent health officers.

But what must be this special training of him who would be competent in the broad field of state medicine? Obviously his knowledge must be based upon a liberal medical education. But there must be far more. The competent physician is not necessarily capable of satisfactory health administration. Primarily, however, medical education must be the foundation and no part of medical education is non-essential. If a proper understanding of the cause and origin of disease is necessary to intelligent treatment, it is absolutely indispensable for the better knowledge of prevention. In the cause, the origin and the character of the disease, we find embodied practically all of the branches of medical education, with the exception of therapeutics. And still the well qualified health official should not be lacking in therapeutic skill and training.

But aside from the various branches of the usual medical course, the health officer should be informed on the theoretical and practical phases of sanitation, hygiene, ventilation, sewage disposal, water purification and protection of water supplies, disinfection, fumigation, quarantine, the production and use of the various protective and curative sera, sanitary plumbing and all of the subjects which go to make up sanitary science and, in addition, he should receive far better and more extensive training in laboratory methods in hygiene and sanitation than is usually to be had by our medical schools.

Up to this point the qualifications and requirements are almost purely medical, but these are but a part of the qualifications of the well rounded public health officer. A careful and conscientious study of the public health laws is most essential. Legislative bodies are inclined to give remarkable powers to their health boards and officers, but laws framed by those entirely unacquainted with the needs of sanitary government frequently miscarry and not infrequently act prejudicially rather than favorably in public health administration.

The state or municipal health officer should be able to detect the flaws in health ordinances and statutes. He should profit by the experiences of other states and cities. He should be conversant with the powers and limitations placed upon him through the laws and the judicial inter-

health. The day has practically come when municipalities, awakening one after the other, will insist on having men of special qualifications to guard these things so essential to the health, the life, the happiness and the prosperity of the community.

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The state or municipal health officer should be able to detect the flaws in health ordinances and statutes. He should profit by the experiences of other states and cities. He should be conversant with the powers and limitations placed upon him through the laws and the judicial inter-

pretations of the laws. He should act fearlessly in his capacity and should take advantage of every power and utilize it for the benefit of the public health, but he should appreciate that he is a part of the government and should never overstep the bounds which the laws have placed about him. He should be able to draft rules and regulations for the control of public health, which will contain every possible element of strength, but which will not conflict with the laws and which will not be found legally defective in times of their enforcement. He must, in fact, acquire a considerable amount of technical knowledge and his efficiency will be vastly increased if he cultivates an unprejudiced and judicial mind. But he must be able to go even further. In either state or municipal government, the health officer naturally becomes a member of the cabinet of the executive. He must be the adviser in medical and sanitary matters. He should be able to suggest proper legislative reforms and to appreciate the possible unfortunate results of sanitary and public health legislation.

Scientific in his training, he must not become the slave of the test tube and the microscope. He must be able to meet with men, to influence them to assist him in public health measures. He must be able to harmonize opposing factions without relaxing in the proper enforcement of his rules. He must cultivate the people and must gain the power to carry public sentiment with him in favor of good and in opposition to bad legislation. He must be a student of government and, in a way, a student of politics. He must become a politician in the support of the best interests of public health and he must be able to meet the opponents of sound and good measures at their own game and to defeat them upon their own ground. He must assist and even take the initiative in the making of laws, the necessity for which he alone is first to recognize.

In this field the health officer of the state or municipality may accomplish as much for the people as in any of the purely sanitary lines. In our own state, during the sessions of the last General Assembly, the health officers of the state, the secretary of the State Board of Health, entered upon the floors of the legislative bodies and led with success the opposition to a half score of measures inimical to the best interests of the health and well being of the people. And far from the least of the accomplishments of the competent health officer, he should fit himself to become the teacher of the people. He should be able to bring to those of moderate intellectual attainment all of the facts of sanitary matters in a simple and an intelligent way, couched in words that are forceful and direct, in sentences full of interest and meaning, but in simplifying these things for the people, he must not depart in any way from scientific accuracy and truth. The education of the people as to the cause and prevention of contagious diseases, as to the dangers from filth, from insanitary conditions and unhygienic living, is probably, in the long run, more effective than any other form of sanitary work.

The health officer should be free from the vicissitudes of partisan politics and of such a high order of merit as to deserve and receive both public and professional confidence, well worthy of being trusted with all

information in regard to disease, one who will not only do his work well, but will see to it that his subordinates are equally conscientious and trustworthy. He should be a tactful and persuasive man. Before accepting the office he should understand fully that the efficiency of the health officer requires him to interfere with the convenience of some citizens, the stubbornness of others, the avarice and ignorance of others. His requirements will often provoke criticisms of both his methods and his motives. This is inevitable and must be borne with tact, patience and dignity. Recognizing that he is endowed with authority, he should act with good sense and good judgment, being careful always to remove any hardships that can be safely removed, avoiding all things that are unnecessary and ineffective, imposing no needless restrictions, and yet seeing to it that all instructions are obeyed implicitly, enforcing all rules and regulations sanely, humanely and fearlessly. Many will appreciate his good work, he will have the approval of his own conscience and he will be sure of his reward, if not in this world, then surely in the next.

OBSTETRIC ASEPSIS AND ANTISEPSIS.*

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Obstetric asepsis and antisepsis preceded surgical asepsis and antisepsis. To speak of surgical cleanliness is an anachronism, for it was an obstetrician who first recognized the cause of infection and who laid down the rules for its prevention. Fifteen years before Tyndall discovered the germs in the air, seventeen years before Pasteur proved that decomposition of liquids occurs when germs gain access to them, and five years before Lister obtained his medical degree, Ignatz Philip Semmelweiss had announced to the world the real nature of puerperal and other wound infections, and had prescribed a successful prophylaxis. Semmelweiss knew nothing of germs, but he saw with crystal vision where childbed fever and surgical pyemia originated and he proclaimed the truth to the world in these words: "I teach that every case of childbed fever arises through the absorption of decomposing organic matter; these deleterious substances are most often brought from the outside to the individual; the carriers of these deleterious substances are the examining finger, the operating hand, the instruments; bed clothes, the air, sponges, the hands of the midwives, and nurses, who touch the bed pans of infected puerperæ or other sick, and then come in contact with newly delivered or parturient women. In short, the carrier of the infection is everything that, soiled with decomposing organic matter, comes in contact with the genitals of the patient. In rare cases these deleterious substances may arise within the puerperæ."

"Puerperal fever is not limited to the puerperium, but is the same disease as pyemia, being only a variety of the latter." It is generally believed that Sir James Y. Simpson first compared the puerperal uterus to an open wound and puerperal fever to an infection of the same, but

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Cruveilhier, long before him, had done this and Semmelweiss, more clearly than either, pointed out the analogy. "You obstetricians, you surgeons," cried Semmelweiss, "you have the poison on your hands, on the utensils, the instruments; and, everything else, infection through the air, autoinfection, predisposition is of little importance." In an open letter to Scanzoni, Semmelweiss says that surgeons die from wounds they acquire from infected cases, or as he puts it, from the introduction of decomposed animal matter into accidental wounds.

For the prophylaxis of puerperal infection, Semmelweiss demanded, first of all, the disinfection of the hands of the accoucheur, and of the nurses, and the sterilization or removal of all supplies or instruments that had come in contact with "decomposed organic matter." Change these three words to the single word "germs" and we have the theory absolutely up to date, and in every way correct. Semmelweiss ordered the isolation of infected puerperæ, and those suffering from infectious surgical or medical diseases, and he demanded that the operatives in the obstetric wards shall not come in any way in contact with "decomposing organic matter." In short, he promulgated the doctrine of "non-infection" which only in the last few years is being adequately appreciated. And all this in 1847 and 1848!

Seventeen years later came Pasteur and Koch, who demonstrated the bacteria in Semmelweiss' "decomposed organic matter," his "deleterious substances." Nineteen years later came Lister, with his occlusive dressing and carbolic acid spray, fearing the air more than the hands. Then comes a long train of German and French workers out of which these names may be selected: Trendelenburg, von Bruns, von Mikulicz, Schimmelbusch, Doleris. They all rediscovered and placed on a scientific basis, the truths Semmelweiss had seen and announced decades before.

However, it is not the principles and practice of aseptic technique that I intend to speak to-night, though statistics prove that puerperal fever is just as prevalent now as it was twenty and forty years ago. Williams, of Wales, in the Milroy Lecture, 1904, shows that in England and Wales the mortality from puerperal septic disease, in 1901, was 2.24 per 1,000, and in 1861, 1.27 per 1,000. This is a large and unnecessary mortality, and in addition, the number of cases of severe but not fatal infection is very great, and shows little tendency to diminish. What are the reasons for this continued mortality and morbidity? 1. The principles of asepsis have not yet thoroughly permeated the great mass of the medical profession. 2. The social conditions, in which the vast majority of confinements are conducted, are not favorable to an aseptic delivery, and the time, effort and pains required of the physician to force such favorable conditions are not compensated for by the public, either by money or by gratitude and recognition. 3. A small proportion of the deaths from sepsis is absolutely unpreventable by any known human means. In maternity hospitals, the mortality has been brought down to the last mentioned class, and the properly conducted maternity hospital is now the safest place for a woman to have her baby.

In recommending a technique to the general practitioner, then, it

would be advisable for him to imitate, as far as the conditions of the patient permit, and as far as he can force them, the aseptic methods of the most scrupulous maternity or surgical operation room. Let him regard the obstetric patient as liable to infection to the same degree as a patient whose abdomen has been opened and upon whom a laparotomy has been performed.

That it is possible to develop a fine aseptic technique in the home of the patient is proven by the daily experience of the Chicago Lying-in Hospital Dispensary. In this service over 7,300 consecutive full term labor cases have been conducted in the homes of the poor and poorest of the city, with but one death from sepsis. Rubber gloves are used in the conduct of all our work, and as antiseptics we rely on the liberal application of lysol and bichlorid, externally.

But there are several principles for the conduct of an obstetric case, which, while they have nothing to do with the killing of germs, are of great influence in obtaining a normal and afebrile puerperium.

1. During Pregnancy.—Cure any local disease, as vaginitis, cervicitis, or other infections as thoroughly as possible before labor supervenes. An appendicitis should be operated on early. The same may be said of salpingitis, the diagnosis of which is harder to make. Instruct the patient in methods of local cleanliness. Forbid coitus and self examining in the last month of pregnancy.

2. During Labor.—Insist on having the best of everything in the house for the confinement. If you do not ask for it you will not get it. Every puerpera is a wounded woman, and infection enters the wounds and the vital principle of all methods of prophylaxis is to prevent as far as possible, parturient injuries.

Limit the number of internal examinations to an irreducible minimum and make them very gently, so not to tear the softened mucous membrane. Conduct the labor, as far as possible, by external examination. The state of the cervix and the possible prolapse of the cord are the only points in a labor indeterminable by external examination. The writer conducts the majority of normal labors with one internal examination, often without any at all, and rarely two or three. Do not rupture the bag of waters until there is a strict indication for it, and let one condition be, a completely dilated os. Avoid all measures to shorten the time of normal labor, as manual dilatation of the cervix, of the perineum, or having the woman bear down before the head has slipped through the cervix. Do not give ergot until the placenta has been delivered. Do not apply forceps until there is an honest, scientific indication for their use. Do not use douches, especially hot ones, or antiseptic ones. These rob the vagina and cervix of their epithelium and their natural protecting secretions. Prevent perineal and vaginal tears, as far as possible, which means, a patient conduct of the second stage.

3. During the Third Stage..—During the placental stage, the rules for the prevention of infection apply with doubled force. The mortality of the third stage of labor is greater than that of the other two stages combined, and its importance corresponds to the death rate. Most practi-

tioners, and all students, do not think so and most text-books treat the third stage in a superficial manner, but the experienced accoucheur and the vital statistics will bear me out in the above statement.

The third stage should be conducted as physiologically as possible. Interference should be instituted only on strict indication, above all manual removal of the placenta should be attempted only when hemorrhage occurs or the structure is pathologically adherent. Great care is to be exerted to obtain the placenta and the membranes complete, as retained portions of either furnish pabulum for the organisms naturally in the vagina, and they retard involution which, when normally progressing, offers a barrier to infection. The uterus should not be bruised by too early, too frequent and too strong attempts at Credé expression of the placenta, or too much and too forcible massage.

The placenta and membranes should be carefully inspected to determine if pieces of the former or shreds of the latter are missing. Such an examination consumes five full minutes and should never be neglected. It is the keystone of the treatment of the patient, should fever arise subsequently. The cases in which it is impossible to determine this point are rare. If a piece of placenta is missing, it must be removed at once. If a piece of membrane less than one-half remains in the uterus I usually do not go in after it. If the uterus balloons out with blood, or if there is external hemorrhage, the cause is frequently found to be such a piece of membrane, wrapping up a blood clot. Removal is then indicated. See that the uterus is empty of blood clots, hard and firmly contracted, before you leave the house.

4. After the Third Stage.—Repair all lacerations of the perineum that are deeper than one-half inch. A large number of cases of infection originate in the perineal wound. It is preferable to do this after the delivery of the placenta, as the parts are not obscured by flowing blood, the tissues are not so swollen and stretched, and one can so arrange the patient that better work may be done. Then too, if one sews the laceration before the placenta is delivered, the proper conduct of the third stage is neglected, and also the placenta will, as it passes over the wound, force blood between the stitches, which will prevent proper healing. The one consideration of saving the accoucheur's time should not weigh against the above disadvantages.

After every operative delivery and after every breech delivery, and in all cases where there has been a rapid dilatation of the cervix, examine the whole utero-vaginal tract for lacerations. You must know, without the least cavil of a doubt whether or not there is a perforating injury of the parturient canal, you must determine exactly the number and extent of the puerperal wounds. This advice is not given for normal cases, but for operative and abnormal cases.

After the puerpera has been cared for on the lines just indicated, the parturient canal is to be severely left alone. No douches are given. The single indication for douches, in my opinion, is hemorrhage. Before introducing the hand into the uterus in any manipulation, I wash out the introitus and lower third of the vagina with lysol solution and

bichlorid on cotton pledgets. This is to avoid carrying higher into the uterus particles of feces, etc., which may have reached this point through the various manipulations connected with an operative delivery.

5. During the Puerperium.—Leave the woman alone. Make no internal examination, give no douches; practice only external, vulvar antisepsis. If the perineorrhaphy wound becomes infected, remove the sutures and open up the wound. If the puerpera develops fever do not do anything, if you are certain that the placenta was complete. If you are not sure about the placenta it may be necessary to invade the uterus, a procedure at this time fraught with great, often fatal danger. The importance of having determined the empty condition of the uterus right after delivery may now be appreciated.

In no place in all medical practice does prevention play such a leading rôle as in puerperal infection.

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THE ACTION OF ANTISEPTICS UPON THE PARASITE.*

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Ever since the positive recognition of the existence of bacteria, a continual search for antiseptics and germicidal agents has been in progress. Almost every conceivable material has been used. Yet with all this there is litle beyond the facts as shown in the original tables of Miqual. Antiseptic value and germicidal strength must be differentiated. One is the restraining and the other the killing effect. The first is of most interest in its commercial application, the latter in its medcal and sanitary bearing.

Bacteria are extremely delicate structures and the chemistry of their protoplasm is entirely analogous to the general chemistry of higher organisms. In the absence of spores, life resistance is slight. But this does not modify the fact that, in a practical way, the destruction of infectious agents is not as easily accomplished as theoretical observations would indicate. The ordinary cultivation of bacteria is not so easily accomplished, but that there are constantly present numerous factors that are interfering with the desired result, and this even in the absence of definite poisons to the cells. In a practical way a disinfectant must act at once, therefore, the rapid killing strengths alone are of value. The entire problem resolves itself into the practical proposition of how to get the various available agencies in contact with the infecting organisms and also the requirement that damage must not be done to the tissues.

Without entering into the details of the limits of efficiency of the many substances that have been used as disinfectants, we may consider certain principles that are involved in the action of the various classes or groups of available substances. In the testing of disinfectants, the methods of investigating may be undertaken along several lines of procedure.

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1. The application of solutions in various strengths to mass specimens of bacteria:

(a) Inoculated platinum wire dipped into solution; (b) the glass rod method dipped into solution; (c) the silk thread method immersed in solution.

In all of these, after the time elapse in a given case, the bacterial specimen is transferred to show if growth is still possible.

2. Suspensions of bacteria.

(a) Suspensions of test organisms in bouillon or distilled water, to which is added an equal amount of a definite strength solution of the antiseptics, thus reducing the strength to one-half; (b) the rubbing into a definite strength solution, a scraping from a surface culture, usually agar. Drops from such mixtures are transferred to blank tubes of media at the end of different time periods.

3. The microscopic method.

Preparation of hanging drops of definite strength solutions into which are placed a few organisms and the effect of the solution is actually seen.

The microscopic study of the action of poisons on micro-organisms has been a field of interest for many years. This has not been limited to observations in bacteria, but has also included other fungi and infusoria. Any marked change in the concentration of solutions causes an osmotic disturbance of the bacterial cell contents, plasmolysis being applied to retraction of protoplasm, and plasmoptysis to a swelling and bursting of the protoplasm. The possible relation to absorption of poisons can be shown by the absorptive changes that occur during the application of dye stuffs. The gradual absorption of pigmentation can be seen. In this connection, some observations upon yeast cells has a bearing. That is, the tendency to collect mineral matter from the surrounding medium. It would seem that much of this activity is not immediate, but is gradually progressive.

In consideration of methods, it may be said that the Committee on Disinfectants of the American Public Health Association has attempted to formulate some uniform procedures to be known as standard methods for testing disinfectants. Rideal has proposed the same, but rather as a matter of comparison in what is known as the coefficient or disinfection value.

It does not seem possible at this time to devise any standard methods. Indeed, the selection of certain species of bacteria at test objects is not generally acceptable. In all experiments to determine antiseptic action, a number of factors may cause variation in the results. There may be changes in reactions caused by the disinfectant substance; osmotic effect upon bacteria when they are transferred from one solution to another; the temperature at which the test is made, or the incidental presence or absence of several substances, especially albumin, but also peptone and extractives. If these factors are not considered, the result may be greatly changed in a given series of tests, when they are repeated. This may be illustrated by the action of sublimate upon anthrax bacilli, as shown long

ago by Behring: 1-500,000 in water, killed in a few minutes; 1-40,000 in bouillon, killed in a few minutes; 1-2,000 in blood serum was not always certain.

The action of disinfectants depends upon chemical action. The effect is, therefore, entirely in line with the demonstrable limits of chemical reaction in general. Under two conditions, however, there is certainly something beyond our immediate methods of recognition of the limits of reaction in a chemical sense. These are the effect of ionized salts upon micro-organisms and the complex processes of agglutination and bacteriolysis which take place in extreme dilutions. The immediate effects causing death, that we can note, are coagulation of the cytoplasm, oxidation, chemotaxis, and absorption by the cytoplasm of the poison.

With due regard for the extensive reports of experiments with all manner of disinfectants, the list of eminently antiseptic substances is short. Formaldehyde is the only recent addition to show value over 1-10,000 in antiseptic strength. Without attempting a classification of antiseptics, we may briefly consider a few facts as to the action of the chief available groups.

The Metallic Salts.—Of all of the metals or metallic salts, three stand foremost and are so different in action that they are true poisons; viz., mercury, silver and copper. Raulin, in his experiment in 1857, noted the poisonous action of these elements. His experiments were devised to discover the necessary mineral foodstuffs for micro-organisms. These experiments led to a grouping of the elements into those that were useful or essential to living plants; those that were inert, and those that were actually poisonous. Magnesium, sodium and potassium are of the first, the iron group of the second, and silver, copper and mercury, of the third.

Miquel found these of highest value as antiseptics, and there has been nothing to materially change our opinion as to their efficiency. The action of salts of these metals is not entirely dependent upon coagulation of protoplasm, because their efficiency is much increased when coagulation is avoided. The double salt, mercuro-potasso-iodid, is more active as a germicide than bichlorid, because it does not coagulate albumin as strongly as the former. The action of the metals themselves as destructive agents towards bacteria is well known. Fermentation in copper vessels is unsatisfactory and metallic silver is very destructive to bacteria coming in contact with it. This was clearly proven in several series of experiments undertaken by the writer to show the bacteriologic condition of different coins.

A most important fact concerning metallic salts is that the union with cytoplasm is a permanent chemical bond. By the microscopic method, it has been shown that dilution into the millions act injuriously upon cells. In such conditions of dilution, the damaging influence can be more rationally attributed to ions than to the salt itself, and the metallic ions are the true poisons, shown in a series of experiments with different salts. The action of formaldehyd, as far as can be ascertained, depends on its tendency to become completely oxidized. This is seen in the active reaction between it and an oxidizing agent, as permanganate of potassium.

This would also explain the difference in action upon bacteria and higher forms of life. The delicate cell walls of bacteria offer less resistance to the abstraction of oxygen than those of more complicated organisms. Such oxidation results in formic acid, which is also poisonous to protoplasm.

Carbolic Series.—Carbolic acid, cresylic acid and the cresols are simply coagulating substances, and act as germicides by rendering the cell protoplasm insoluble. Their value is, therefore, low, and is in proportion to the extent to which coagulation is produced.

Essential Oils.—The experience of bacteriologists is that essential oils act as antiseptics, and when the oils are washed from the cells they will revive. The place of these bodies as restraining agents is very well fixed and they should be more extensively used with this end in view. My own experience would not warrant accepting them as belonging to the stronger disinfectants.

Oxidizing Agents.—The oxidizing agents are potassium permanganate, hydrogen peroxid, and numerous complex chemicals. The action here is largely due to wet combustion. Their activity is in direct proportion to the oxygen available. For special purposes they have found proper place. However, when the oxygen is used, action ends and renewed growth may be started from a few possible remaining viable organisms. In a practical way, positive action can only be expected when the dye is applied in great excess.

Should conclusions be summarized, it would seem that the action of very few substances is such that in suitable strength a combination with cell protoplasm will readily take place and will certainly kill. After discussing Flugge's directions for disinfection, Professor Robinson, in the report of the Committee on Disinfection of the American Public Health Association, last year, concludes that much of our information is too complicated, and says: "Nothing is better for gross disinfection than milk of lime; for bedding, clothing, etc., steam, hot water and hot soda solution; for quick sterilization of the hands, 1-1,000 sublimate is best, and for room disinfection, formaldehyde holds first place.

FIFTY BACTERIOLOGIC TESTS OF HANDS, BRUSHES, GLOVES, PASTEUR-FILTERED WATER, STEAM AND FORMALDEHYD STERILIZERS, AND FORMALDEHYD DISINFECTION OF ROOMS.*

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Aside from the periodical testing of sterilizers and of his own hands and those of his assistants when it was least expected—to which the writer has been accustomed for years—the occasion for the present experiments is the testing of the efficiency of the apparatus of a new hospital, which embraces some new features, and to bring to a discussion, incidentally, the formaldehyd disinfection of rooms. According to the most authoritative investigations and conclusions on the subject that

* Read before the Chicago Medical Society, May 23, 1906.

have been a matter of record for years, and likewise according to the very creditable and recent experiments of the Illinois State Board of Health, some rather serious errors in formaldehyd disinfection have obtained in our city (Jacques, *Jour. Amer. Med. Assoc.*, Jan. 13, 1900; Owens, *Jour. Amer. Med. Assoc.*, March 3, 1900). This was occasioned by faulty experiments, in which the micro-organisms were exposed to the antiseptic gas while in their culture medium. In doing this the medium absorbs the antiseptic gas so rapidly that it is no longer a food for the germs and they do not multiply. But it is a serious error to think that because no colonies develop that, therefore, the germs which were purposely introduced are dead, because collateral experiments, correctly conducted, show that they are probably alive. All bacteriologists, in making such tests, expose the germs to the gas in a dry state on pieces of thread or paper as carriers that are too small to absorb and hold enough of the gas and to carry it into the culture medium, where it might inhibit the growth, if they are not dead. The threads were used here, and in order to carry them safely from place to place and to expose them safely and without danger to the other contents of the sterilizers little stubby bundles of "floss" (mercerized cotton thread used in embroidery) held together in a knot were placed in small test-tube-like homeopathic vials, made to order, quite strong, and with no neck, with a lumen of nearly half an inch, and about two inches deep. Into the bottom of these the threads could readily be placed by sterile forceps, and they were retained by a loose gauze diaphragm, placed half way to the bottom and a tighter cotton cork at the mouth of the tube. The latter were generally removed in the room experiments to admit the gas more readily, but not in the others. For the selection of the bacilli to use in the various tests and for advice about the general plan of this work, I am indebted to Prof. R. Zeit, from whose laboratory the germs were obtained and replenished as often as needed to assure sufficient virulence. The germs experimented with were the spore-bearing anthrax bacillus, *Bacillus coli communis*, *Bacillus pyocyaneus* and the *Staphylococcus aureus*. All the experiments, except the hand and water tests, were made with pure cultures, and every single experiment or group of experiments with the identical batch of germs was offset by a "control" test.

Hands.—In the hand experiments, the hands are first scrubbed for eight or ten minutes in hot water, changed several times, with soft soap and rather stiff sterile brushes, that are kept so by sterilization in formaldehyd gas and storage in 8 per cent. formalin, in solution. Next, the spaces under the finger nails (properly trimmed) are very carefully scraped with the ends of good nail files, at first with the bare steel, and then with the same covered with gauze soaked in soft soap. The roots of the nails are likewise attended to. The hands and arms are then scrubbed in the same manner as before, in hot water, with a good wad of gauze full of soft soap, instead of a brush, for five to eight minutes more, and are then rinsed off in a current of water. They are then immersed to the elbows for three to five minutes in a deep tubular glass vessel, filled with bichlorid of mercury, 1 in 3,000, solution. Then they

are treated with alcohol, two to four minutes, and are finally soaked in quite hot sterile water for fully ten minutes, to remove all disengaged remnants of antiseptics. A small bit of sterile cotton is now twisted on one end of a thick and stiff platinum wire, mounted by the other end in a glass rod. The covered end is then seized additionally in a pair of slender forceps and is rubbed under the ten finger nails and across the roots of the nails of one person. The cotton is then deposited aseptically in a bouillon tube. Another similar wad of cotton is rubbed firmly along the grooves of the palms of both hands and the folds of skin between all the fingers and is deposited in another tube. In this manner eight pairs of cultures were prepared on two occasions from seven persons' hands and observed in an incubator at about 100 F. for ten days, without the slightest sign of growth in any of them. These tests would have been still more severe if the hands had been soaked in a boiled solution of sulphid of ammonia, instead of merely sterile water, previous to the grafting; but the water only was chosen, because it more nearly corresponds to the practical conditions in operating.

Filtered Water.—In this hospital, unlike most others, all the water that is intended for drinking and for surgical purposes is passed through a large Pasteur, so-called germ-proof, filter, of the most approved type, before it is sterilized. It is, therefore, a matter of much interest to know whether the water is germ proof after it has passed through the filter. On each of two days, therefore, four gallons of water were allowed to percolate through a cork of absorbent cotton, in the bottom of a funnel, under strictly aseptic provisions and conditions. Nothing was visible, macroscopically, on these cotton plugs when they were transferred with greatest aseptic care into bouillon. Both of these cultures developed a film on the surface in five days, which did not increase much during ten days' further observation and left the bouillon clear beneath it. Microscopically, this film consisted mostly of large rhomboid crystals with transparent agglutinating material, and, after the addition of acetic acid, the crystals disappeared with liberation of a gas and only dots of coagulated gelatinous substance remained. No signs of micro-organisms.

Brushes and Gloves.—The results in experiments with infected brushes and rubber gloves will appear incidentally in the tests of the sterilizers in which they constitute a part of the test objects.

Steam Sterilization.—Underlying this are several fundamental principles that are not sufficiently known or appreciated, viz., (1) that the air must first be removed from every sterilizer, because a mixture of air and steam does not kill. (2) Dry heat or dry air is worth almost nothing in surgery, because it does not penetrate and requires too high a temperature to kill. It is of value only for laboratory dishes and for things that are to be destroyed. It is only in combination with sufficient water moisture that heat penetrates and kills, and that steam is most germicidal, other things being equal, which contains a maximum amount of this moisture. (3) Steam under pressure tends to become dryer. It may become too dry or "superheated," when its germicidal property diminishes, approaching that of hot air. The best review on this sub-

ject is by Bruno Heymann,[1] of the Fluegge Laboratory at Breslau, from whence many of the best researches on disinfection during recent years emanate. He describes seven different mechanical and chemical devices, aside from the anthrax spore test, by means of which the moment of penetration of a sufficiency of heat and moisture in the contents of a steam sterilizer is noted, and by some of them the duration of their action can also be determined.

Two types of steam sterilizers are in efficient use; one that works on the principle of Robert Koch's "Dampftopf," in which a current of the wettest kind of steam passes through the disinfecting chamber unconfined, preferably from above downward, and displaces the heavier air by gathering above it and crowding it out at the bottom. The penetration of a sufficient degree of moisture in this type of apparatus attends or produces the required temperature of 100° C. and the latter can readily be ascertained experimentally by placing a self-registering thermometer in the lower strata of the disinfecting chamber. This type of apparatus is more certain in its effect, if properly constructed, in unskilled hands, and is by far the most simple and inexpensive, but it requires about double the time that pressure machines require for disinfecting a charge. According to von Esmarck,[2] the firing surface of this type of sterilizer should not be less than ¼ square meter in area for a cubic meter of disinfecting chamber, while in the pressure steam apparatus it should be 3½ square meters for one meter of chamber space.

The other type of apparatus embodies steam under pressure in a closed chamber, from which the air is previously removed, partly at least, by being heated by means of a surrounding steam jacket, and then drawn off, in some of them at least, by the passage of a current of steam over a small aperture. The contents of the sterilizing chamber being previously heated to near the boiling point of water and being placed in a partial vacuum, they are prepared for very energetic action of the steam that is introduced under pressure, and does not require a long time to act. But the degree of absence of air and the degree of moisture of the steam under pressure are somewhat uncertain and yet most vital features in the process that only an expert operator would be able to determine. But this difficulty is overcome, according to Heymann, by employing both a stationary thermometer and a manometer to measure the pressure. Reynault has worked out a standard table of relations between these two, the temperature of saturated steam and its pressure. Thus, at 1/10 of an atmosphere it must be 102.7° C. and at 2/10 atmosphere it must be 105.2° C. This relation must be noted in each operation. But what to do when this required standard is not attained I would not know; and the much more complicated mechanism of the pressure apparatus makes it proportionately more liable to get out of order. An expert is needed to repair it, while any tinner can repair a non-pressure apparatus. But the only conclusive proof of the efficiency of any form of either type of such apparatus is afforded by testing it with

1. Heymann, Bruno: Zeitsch. f. Hygienie u. Infectionskrankh., vol. L, p. 421, 1905.
2. von Esmarck.

spore-bearing germs of known virulence or resistance, as the writer has attempted to do in the following experiments. When not otherwise designated, two large Boeckmann sterilizers were employed, in which a current of quite wet steam (not confined) is active. They are provided with specially large gas fires and their outer cylinders are covered with asbestos to prevent the otherwise useless radiation.

Four of the experiments were made by putting one of the four different germ tubes above described into four fingers of an uninjured rubber glove and not removing the cotton stoppers. A strand of gauze of the size of a small finger was also introduced to extend from the base of the fingers out of the gauntlet to prevent collapse of the glove. It was then wrapped successively in two towels, fastened with safety pins, and placed in the center of sheets, towels, gowns, etc., within the sterilizers. Counting from the time when steam began to appear at the top, the firing was continued two hours in the first, one and a half hours in the second and third experiments and one hour in the fourth, with an additional half hour in each test merely to dry out the things. None of these showed any growth, although spore-bearing anthrax was always present. In two other experiments a package containing the four different germ tubes was placed in the botton of an open fruit jar crammed full of gauze. These were also fired two and one and one-half hours, respectively, with the half hour for drying added. These eight tubes also gave no growth.

In three experiments a package containing the four germ tubes was wrapped in a particularly large and firm bundle of clothes and cotton, with a special effort to embarrass the penetration of the steam. These were also steamed two, one and one-half and one hour, respectively, plus one-half hour for drying each. The anthrax in the one-hour experiment was suspicious of growth after ten days in the incubator. All the others remained clear. Two new finger brushes were sterilized in steam and soaked in a large bouillon culture of spore-bearing anthrax, wrapped in gauze and cotton, and dried at 60 to 70 F. These brush packages were treated at different times for one and one-half hours in the current of steam, plus one-half hour for drying. The brushes were then placed in bouillon in large Petri dishes for ten days. No anthrax grew in either of them. In one a fungus grew as an accidental contamination.

Six other tests were made of a pressure steam sterilizer of the type of the Kny-Sprague apparatus. In the first four a package containing the four germ tubes was introduced in each test and in the last two the anthrax alone was introduced. These packages were placed as nearly as possible in the center of each charge to be sterilized. As usual forty-five minutes' firing was done each time, of which five minutes was to heat and exhaust the air, then twenty minutes to sterilize and twenty minutes to dry the contents. None of these eighteen tubes developed a growth, while the controls all grew.

Formaldehyd Sterilizer.—This consists of a galvanized iron box, 18 inches high, 18 inches deep and 20 inches broad. It has a door on the front face, 17 by 19 inches, which is hung by hinges at the bottom so

that it can be used as a shelf when open. It is constructed quite airtight everywhere, except at the door fitting and a two-inch hole in the bottom through which a moderate flame from a Bunsen burner plays against a piece of sheet iron, which is laid over this hole on the inside. On this sheet iron a shallow graniteware dish is placed, containing usually one ounce of formalin in three ounces of normal salt solution, which is evaporated during one and one-half hours' firing. The apparatus is allowed to remain closed half an hour longer. This box is covered externally by asbestos and is coated with enamel paint inside. Its back and side walls project six inches beneath its bottom so as to secure a protected space for a small Bunsen burner to stand and to burn evenly beneath. This flame is so adjusted as to require about one and one-half hours to evaporate the four ounces of liquid in the dish. As the interior space is 3 7/10 cubic feet, a little over two drams of formalin is required per cubic foot. This was accepted as a working rule after the following tests had been made in this apparatus: In each of four experiments a set of four germ tubes was placed in a sound rubber glove wrapped as above mentioned and treated the first time with one and one-half ounces, each, of formalin and normal salt solution, with two hours' firing of apparatus.

Second time, one and one-half ounces of each fluid, one and one-half hours' firing, plus one-half hour drying.

Third time, one ounce of formalin, two ounces normal salt solution, one and one-half hours' firing, plus one-half hour closed.

Fourth time, one ounce of each fluid, one and one-half hours' firing, plus one-half hour closed.

All of these sixteen tubes remained clear except the anthrax tube, in the fourth experiment, which grew.

Twice a test package of the four germ tubes was placed in the bottom of a fruit jar crammed full of gauze. This was treated once with ten drams of each fluid and fired one and one-half hours, all tubes remaining sterile; the other time with one and one-half ounces of formalin and three ounces of salt solution and fired two hours, and of this the anthrax grew.

On two occasions a test package with all the germs wrapped in sheets, etc., and treated once with one and one-half ounces of each fluid and fired one and one-half hours, plus one-half hour closed, and the other time with one ounce of each fluid and fired one hour plus one-half hour closed. All these eight tubes remained sterile in the cultures afterward. Again, two finger brushes sterilized in steam and heavily charged with anthrax spore culture and dried were treated in this formaldehyd oven, with other things, each time with one ounce of formalin and three ounces of salt solution, with one and one-half hours' firing, plus one-half hour closed. In one of these the door of the oven was not closed tightly and a growth of anthrax followed. In the other nothing grew.

This oven is the best thing in which to sterilize rubber gloves, because they are available for use, dry with boric acid as a dusting powder instead of the insoluble and inert talcum powder, and while the rubber becomes brittle gradually they do not become baggy as they often do when

boiled thoroughly. A dry glove is much easier to put on after the spaces under the finger nails and fine grooves of the skin have been rubbed full of boric powder treated with this gas. It is evident that this powder absorbs and holds much of the gas, which counteracts the infectious elements in the sweat, because its action on the skin will be excessive if the powder is used rather freely. When rubber gloves are treated in steam sterilizers, that are effective, in order to have them dry for use, the rubber surfaces frequently stick together in spite of free talcum powdering. All other soft and hard rubber articles are injured in formaldehyd gas much less than in hot water or steam, while leather parts are ruined in steam. Iodoform, boric acid and other dusting powder shakers can not be sterilized along with their contents by any other known method, and ordinarily are a very filthy thing in a surgical sense. But by passing through this formaldehyd oven every time after they have been filled they conform to aspesis and are a very useful adjuvant.

Disinfection of Rooms.—For this purpose numerous more or less complicated machines have been invented and patented in this country and in Europe. But they are mostly cumbersome or complicated and too expensive for boards of health to invest in in sufficient number. They are really not needed, because, according to numerous investigators, practical disinfection can be carried out with formaldehyd gas generated by simple means. Among those who have conducted the best investigations and contributed the best information on this important subject in recent years are Werner,[3] Kister,[4] Trautmann,[4] Engels,[6] Roemer,[6] Herzog,[7] Meyer and Wolfert,[8] O. Voges,[9] Ravenell and Gilliland,[10] Kinyoun,[11] Paul F. Mueller,[12] Vaullaird,[13] C. Fluegge,[13] Joergensen,[15] M. von Brunn,[16] and the Illinois State Board of Health.[17] Some of the practical facts elicited from these experiments are as follows: (1) Formaldehyd gas is best obtained from a 40 per cent. solution in water either by spraying it over all the surfaces and objects in a room and keeping it closed for 12 or more hours, or by boiling it diluted several times with water either in an open vessel if inside the room or in a retort-like apparatus when outside of the room. To prevent polymerization it is well to dilute it about three times with water and likewise to add a little common salt, chlorid of calcium, menthol or glycerin. The Illinois State Board of Health directs one to pour one pint of formalin over three and one-half ounces of permanganate of potassium in an asbestos covered vessel. (2) The action of formaldehyd gas is greatly intensified by the pres-

3. Werner: Archiv. f. Hygienie, vol. L, No. 4, p. 305, 1904.
4. Kister and Trautmann: Zeitsch. f. Hygienie, u. s. w., vol. xlvi, No. 3, p. 379, 1904.
5. Engels: Archiv. f. Hygienie, u. s. w., vol. xlix, No. 2, p. 129, 1904.
6. Roemer: Beitrage z. Experimentellen Therapie, vol. vi, No. 3, 1903.
7. Herzog, H.: Centralblat f. Bacteriologie, etc., vol. xxxiv, No. 2, p. 170, 1903.
8. Meyer and Wolpert: Archiv. f. Hygienie, etc., vol. xliii, Nos. 3, 4, p. 171 u. 221, 1902.
9. Voges, O.: Centralblat f. Bacteriologie, u. s. w., vol. 32, No. 4, p. 314, 1902.
10. Ravenell and Gilliland, University of Penn. Med. Bulletin, vol. 16, April 1, 1903.
11. Kinyoun: U. S. Public Health Reports, vol. xii, No. 5, p. 89, 1897.
12. Mueller, Paul T.: Centralblat f. Bacteriologie, etc., vol. xxx, No. 13.
13. Vaillard: Archiv. de Med. et de Pharm., vol. xxxix, No. 3, p. 169, 1902.
14. Fluegge, C.: Zeitsch. f. Hygienie, u. s. w., vol. L, No. 3, p. 381, 1905.
15. Joergensen: Zeitsch. f. Hygienie, u. s. w., vol. xlv, p. 237, 1903.
16. M. von Brunn: Zeitsch. f. Hygienie, u. s. w., vol. xxx, No. 2 1899.
17. Ill State Board of Health, Bulletin on Practical Disinfection, Jan. 2, 1906.

ence or combination with it of an abundance of water moisture, so much so that some have thought that it was not so much the dry gas, but its watery solution on the surface of things, that was the active agent. (3) Formaldehyd gas also greatly intensifies the germicidal quality of steam. Steam of 70° C. up to 80° C. temperature can be borne by leather articles, according to Fluegge and Herzog. If such steam is generated from a 1 per cent. formaldehyd watery solution it kills all resistant germs so that objects which would be injured in steam of 100° C. can be disinfected in this manner. (4) Formaldehyd gas usually acts only on the surface of things, but, by creating a partial vacuum first, it will penetrate better. (5) Formaldehyd gas, when liberated, rises at first toward the ceiling of a room and then descends in constantly diminishing efficiency toward the floor. One investigator has used electric fans to distribute it better. (6) Its action is aided by warmth. Rooms should be warmed to about 60 or 70 degrees F. previous to disinfection. (7) The chemical neutralizing agent of formaldehyd is ammonia. (8) From twelve to sixteen ounces of formalin are needed for every 1,000 cubic feet when all apertures are closed. This will kill tubercle bacilli if they are superficially exposed, but all walls, furniture, cases, drawers, etc., require in addition to be disinfected by mechanical and chemical means.

Disinfection of Rooms. Experiment 1.—An attic room was selected containing 850 cubic feet of space, with many clothes closets and drawers, with one small window and a door, both of which were calked carefully. Temperature 70° F. inside. In this and in each of the following seven similar experiments two germ-test packages were exposed, one about one and one-half feet from the ceiling on one side of the room, and the other about one and one-half feet from the floor on the other side of the room and each about two or three feet of horizontal distance away from the sheet, when that was used to evaporate the formalin, and four to five feet away from the generating vessel, when the permanganate method or the boiling method was employed. Each package contained three unstoppered germ tubes in a little gauze holding, respectively, the colon bacillus, *B. pyocyaneus* and staphylococcus. In the first experiment thirteen ounces of formalin (one pint in 1,000 cubic feet) were soaked up by a bed sheet, which was hung over a clothesline drawn about four feet from the ceiling in such a way as to bisect the room diagonally. The lowest borders of the doubled sheet reached to about two feet from the floor. The room remained closed twelve hours. In this first experiment the *Bacillus colon communis* of the ceiling test and the colon bacillus and staphylococcus of the floor test showed growths subsequently in the bouillon cultures.

Experiment 2.—The same room and arrangement with double the quantity of formalin, twenty-five ounces (one quart to 1,000 feet). The room was closed twelve hours. Both ceiling and floor tests showed no growth subsequently.

Experiment 3.—Same room and conditions. Thirteen ounces of formalin poured over three ounces of potassium permanganate and the room left closed for twelve hours. Temperature, 70° F. In the ceiling

test all three grew. In the floor test the pyocyaneus was spoiled accidentally, but the staphylococcus and *B. coli communis* also grew.

Experiment 4.—Same room and arrangement with twenty-five ounces of formalin (one quart to 1,000 feet) poured over permanganate. Ceiling test gave no growth. In the floor test the staphylococcus grew.

Experiment 5.—Hospital laboratory, 1,620 cubic feet in basement. Four half windows and one door, carefully calked. Temperature, 65° to 70° F. Floor and ceiling tests placed as before. Two bed sheets drawn nearer the floor than the ceiling, so as to secure about equal areas around them and about two feet away from the test packages. All germ tubes unstoppered. Twenty-eight ounces of formalin (one pint to 1,000 feet) evaporated on the sheets. The room was closed for twenty-four hours. Of the ceiling test the colon bacillus grew and of the floor test all three germs grew.

Experiment 6.—The same room and arrangement with fifty-one ounces of formalin (one quart to 1,000 cubic feet). In both ceiling and floor tests all germs were dead.

Experiment 7.—A kitchen and pantry of 2,500 cubic feet. One door and one large and two small windows were all made tight. Temperature, 65° F. Floor and ceiling tests placed as in previous experiments, but the cotton stoppers were not removed from the germ tubes and they were also wrapped with cotton instead of gauze as formerly. Five pints of formalin (one quart to 1,000 cubic feet) with three pints of warm water added were divided in two parts of four pints each and placed in shallow dishes over two Roentgen alcohol stoves, having one pint of wood alcohol in each stove and standing in opposite parts of the room about four feet from the floor. The alcohol flames could be seen through a window to burn one and one-half hours. Of the diluted formalin a thick syrupy sediment remained in the dishes, showing that polymerization had occurred and that not all the formalin had been evaporated in the boiling process, evidently because it had not been diluted sufficiently with water. The room remained closed twelve hours. Of the ceiling test in the experiment the pyocyaneus and staphylococcus grew, but in the floor test package all were dead. It is evident that more water should have been added in this experiment to prevent the formation of a solid residue and a stronger fire likewise was needed to evaporate the larger quantity of liquid in shorter time so as to secure the greater efficiency of a denser and larger volume of formalized steam acting for a shorter time.

Experiment 8.—A large clothes closet with one door and two small windows, 500 cubic feet. One pint of formalin (one quart to 1,000 cubic feet) and one pint of water evaporated over one alcohol stove within a wash boiler about three feet from the floor. The room was closed twelve hours. Upper test package yielded no growth. Of the lower package the colon bacillus and the staphylococcus grew. These experiments are not sufficient in themselves to admit of definite conclusions. As far as they go they indicate that a sheet method of diffusing the formalin is rather better than the others here tried. But it is evidently advisable to make use of two pints of formalin for every 1,000

cubic feet rather than only one pint. What the Illinois State Board of Health and all other authentic investigators have laid stress on must not be neglected, i. e., that this disinfection attends only to the air and the superficial surfaces of things in the rooms treated, that upholstered furniture, draperies, unwashable clothing, bedding, etc., should be, in addition, sprayed carefully with formalin or some other chemical disinfectant in solution and then exposed to the open air, the sovereign disinfectant, to eliminate both the odor of the chemical agent employed and the remaining infectious elements. Likewise that drawers, bureaus, cases, floors and woodwork should be washed with a potent antiseptic solution, like 5 per cent. carbolic acid or formalin, and that the walls should be wiped or sprayed with the same mixture and the apartment opened up for efficient ventilation. To leave the laity under the impression that the disinfecting fumigations alone actually completely disinfect everything in such rooms is a most deceptive and dangerous practice.

THE ATTITUDE OF THE PHYSICIAN TOWARD THE NOSTRUM EVIL.*

CHARLES SPENCER WILLIAMSON, B.S., M.D.

Professor of Clinical Medicine College of Physicians and Surgeons, University of Illinois.

CHICAGO.

On being asked by the chairman of this Section to prepare a paper on this subject, I accepted with considerable trepidation for several reasons. The indiscriminate prescribing of proprietary remedies has reached such a stage that it may be stated, without fear of exaggeration, that legitimate prescription writing is in a fair way to become an extinct art. Now, in view of the many and serious evils arising from this, it is necessary for us to orientate ourselves thoroughly as to the exact status of affairs. This is a rather delicate question, and I am only too keenly aware of the fact that, whatever may be the conclusions at which I shall arrive, there will be some who will be disposed to differ from me. The subject is one to which I have been giving some attention for many months past, and in conversation with many well-informed men I find that there seems to be a general lack of knowledge as to the enormous proportions which the nostrum evil has attained.

To obtain some definite and precise information on the subject which is capable of being reduced to figures, I have proceeded as follows: I have requested a number of druggists in different parts of Chicago, as well as in cities outside of Chicago, to go over some hundreds of consecutive prescriptions and furnish me with a list of proprietary remedies therein prescribed. From a large city in an adjoining state I obtained a list of 200 consecutive prescriptions containing 91 proprietary remedies, an average of 45½ per cent. From a pharmacist whose activity is confined largely to the poorer districts I obtained a proportion of approximately 75 per cent. of proprietaries prescribed. The smallest list, received from a druggist in one of the wealthier parts of Chicago, was something over 20 per

*Read before the Section on Medicine, Illinois State Medical Society, Springfield, May 15-17, 1906.

cent. This list is, however, defective, in that it leaves out of consideration a number of so-called pharmaceutical specialties, which are, in reality, as much nostrums as the others.

Now, some very plain truths should be emphasized at the beginning. We have been accustomed to distinguish between patent and proprietary medicines. In a general way, the profession understands by a patent medicine one which is advertised to the public, and by proprietaries those which are advertised only to the medical profession. This is a purely an arbitrary distinction, because, as a matter of fact, there is no technical difference between patent and proprietary medicines. Again, we talk about nostrums and ethical proprietaries, and by inference the latter are legitimate preparations; the former, in one way or another, are fraudulent. Dr. George H. Simmons, than whom no one is better qualified to speak on this subject, has suggested that it is imperatively necessary that we have a standard by which we may judge the proprietary preparations and by which we may put them into the class of nostrums or ethical proprietaries. I can most heartily subscribe to his four propositions, which are, *seriatim*: 1. There should be no secrecy nor mystery connected with their composition. 2. There should be no secrecy nor mystery regarding the firm which makes them nor the place where they are made. 3. There should be nothing in the advertising literature concerning their therapeutic value which is untrue or misleading. 4. They should not be advertised, directly or indirectly, to the public.

Now, to these criteria, absolutely no valid objection can be raised. If the drug is one whose action is known and whose medicinal value is established there can be no possible reason for making a mystery of it, except for the purpose of deceiving the physician. I conceive that the right and wrong of the matter is as follows: Let us assume, for the sake of the argument, that cascara is a drug which requires special facilities for its best preparation; facilities which a retail druggist is unlikely to have. Now, if the firm of Blank & Co. devise a process which is especially advantageous for obtaining a pure and efficient cascara, they are entitled to the rewards which may flow from this, provided they make no false claims for it and use no mystifying language in regard to it. In other words, if they advertise to physicians only Blank & Co.'s cascara, stating frankly that it is nothing more nor less than a simple cascara and leaving out of their advertisements all therapeutic indications, under these circumstances, I think, there can be no objection to a physician when he prescribes cascara to specify Blank & Co.'s. But if the drug is officinal and one which any first-class druggist can and does prepare properly there can be no excuse for prescribing the proprietary article. Again, suppose the manufacturer either calls his product by some misleading or irrelevant name or advertises it as indicated, where, as a matter of common knowledge, cascara would not be indicated, then such action should condemn the article absolutely. As regards the name of the manufacturer, the same rule is to apply. It is a matter of common knowledge that some supposedly reputable firms prepare and sell articles under another firm name, organizing a so-called firm for this purpose. As the only motive for this can be a desire to deceive, all such products should be ruled out

as fraudulent, irrespective of any opinion as to the intrinsic value of the preparation.

The third qualification which I regard as by far the most important, i. e., that there must be no misleading or exaggerated therapeutic claims made for it in the advertising matter, is, I think, self-evident. And yet just here is the most delicate point to decide. Nowhere are opinions so at variance as in therapy. In consequence, a little, a very little, latitude may perhaps be safely allowed. When, however, we find uric acid solvents advertised in such a preposterous way that every man at all conversant with the subject knows that they are palpable falsehoods, then is the time to call a halt. Or when we find a simple tonic claiming to cure diabetes and Bright's disease, or when we find a simple mixture of cardiac stimulants promised as a cure for valvular defects, our wonder at the colossal impudence of their vendors is exceeded only by our wonder that physicians can be found who will prescribe them.

A recent trip by the writer to an adjoining state was made the occasion for examining the methods of manufacture of one of our oldest and most reliable manufacturing houses. I met the head of the firm and had some very illuminating conversation with him on the subject of proprietary remedies. He assured me that his firm had complied at once with the demands of the Council on Pharmacy and Chemistry and was happy to do so. Further, he stated, it simply involved changing the therapeutic claims made by them for a number of their products. As he very frankly remarked, "Our business is a commercial one, Doctor, and we have no interest in educating the medical profession." Of course, not, although it is open to question as to whether the detail men of their firm are not telling some doctor this very thing day in and day out. Most illuminating, and certainly most painfully candid, were his next remarks, substantially as follows: "Doctor, there are something like 140,000 physicians in the United States with whom I have been for many years in the closest touch, and it is quite safe to say that 120,000 of these prescribe proprietaries, good, bad or indifferent, for the simple reason that they are densely ignorant of any scientific therapeutics or materia medica. They want these products, we have them to sell, and there you are." Now, that was not a pleasant thing to have said to one, and yet there are certain things which make us wonder if there be not a good deal of truth in this statement.

The following clipped from a well-known journal certainly does not tend to disabuse us of the truth of this statement: "The Minnesota State Board of Medical Examiners (doubtless other state boards have had the same experience) have observed, during the last few years, many candidates who passed excellent examinations in the other branches who displayed hopeless ignorance in answers to questions concerning materia medica, and particularly concerning prescription writing. There is evidently something wrong in the teaching of materia medica in our medical schools, and it is quite time for a radical change in these methods."

An editorial in a prominent southern medical journal, speaking along this same line, says: "The essential factor in all this is much more radi-

cal. The fault lies in the training of the medical man himself. It is not far from the mark to say that nine-tenths of the graduates of medicine know little or nothing of pharmacology. Prescription writing is acquired slowly after practice has begun, and the vast majority of young doctors copy prescriptions of older men or follow those printed in the text-books. The struggle of the medical student for his degree discounts all interest he may have in acquiring any of the elements of a medical education not required in the curriculum. The U. S. Pharmacopeia is practically unknown to the average medical student and physician and original prescription writing is as lost an art as Damascene blades."

In a symposium on the proprietary medicine evil before the Chicago Medical Society, in discussing the responsibility of the medical teacher for existing conditions, I came to the following conclusions: First, the subject of medicinal therapeutics in general has been subordinated to an undue degree to pathology and diagnosis; second, in his teachings of therapeutics, clinically, the medical teacher has contented himself too often with vague general statements, instead of recognizing that the subject is essentially one of detail and entering on its discussion in the most minute way; third, the teacher has presented the subject of therapeutics at the wrong moment psychologically, instead of in direct connection with the subject of practice; fourth, the teacher of materia medica has often failed to do his complete duty in not acquainting the student with the situation in regard to nostrums as it actually exists and, by thus sounding a note of warning, sending him out forewarned and forearmed.

In a nutshell, the reasons why so large a number of physicians prescribe proprietary remedies is, first, because of a sadly deficient training in materia medica and therapeutics; second, because a lack of knowledge of these subjects makes him fall an easy prey to the grossly exaggerated therapeutic claims of many proprietary compounds, and, third, because it is so much easier to write a single word, such as Tongaline, Phenalgin, Bromidia, etc., than to write prescriptions containing the same ingredients.

There is another and shadier phase of the matter. There are medical men who have stooped so low as to furnish paid write-ups or to contribute original articles purporting to be original research, but which are, in reality, thinly disguised recommendation for this or that proprietary preparation. Small wonder, then, that the general practitioner, reading of these things, proceeds to use them.

Some one may say, as a well-known physician said to me only recently, "Why shouldn't we use proprietary compounds?" I do not wish to enter into this discussion at length, but only to express what seems to me to be the sane, conservative aspect of the situation. I submit the following propositions which, I believe, can be safely defended: First, the overwhelming majority of proprietary preparations are of too little value to deserve a place in our therapeutic armamentarium; second, a pretty large number of proprietary remedies, particularly many synthetics, can be adequately, and often more than adequately, replaced by standard

drugs from the Pharmacopeia. Whenever this is the case the Galenic preparation should be used.

It is true that a very small number of the new proprietaries have genuine merit. These are, as a rule, adopted by the Pharmacopeia just as soon as the proprietary interest in them ceases; but, inasmuch as this requires a number of years, what is the physician to do in the meantime? It seems to me that the Council on Pharmacy and Chemistry will be our most valuable guide in this direction, composed, as it is, of men of tried capacity in their respective lines. They can, and are, doing what the individual physician can not do for himself, except in isolated instances. I am not unaware of the fact that there has been some opposition to the Council, from certain quarters, which is, as I think, entirely unjustified. The subject is so enormous that no individual can have an adequate opportunity to judge the merits of any considerable number of these compounds. We must, therefore, rely on some central authoritative source of information, and this seems to me to be the best solution of the problem.

Let us assume, then, as an established fact that proprietary remedies are prescribed much oftener than their merits warrant, possibly in the proportion of 100 to 1, nor do I think this proportion exaggerated. In a long list of proprietary remedies which I found to be most frequently prescribed, I found almost none which could not either be advantageously replaced by the standard drugs of the Pharmacopeia or which were not intrinsically worthless or fraudulent. Let me quote you a few examples. In one short list we find the following chosen at random: Celerina, Gray's Glycerine Tonic, Tongaline, Bromidia, Freligh's Tonic, Arsenauro, Seng, Fellow's Syrup of Hypophosphites, Sal-hepatica, Phenalgin, Anasarcin, Mercauro, Neurosin, Colchisal, Ammonol, Antikamnia, or the following combined in one prescription, which is certainly a gem: Milk of Magnesia, Glycothymoline, Elixir of Peptenzyme, Lloyd's Hydrastis, Expectorozone, and, lastly, shades of the departed Hypocrates! Liquozone. It seems impossible to believe that a metropolitan physician would prescribe Liquozone, and yet even this appears repeatedly on the list.

Now, is the matter of therapeutics, after all, so very difficult? I think it may be fairly stated that the great masters in medicine, masters of diagnosis and therapy, and by these I do not mean the therapeutic nihilists, use a very limited number of drugs. With thirty or forty carefully chosen drugs one has about all that are ordinarily required. Even this might be considered by some a liberal estimate, and yet, as I think back to my own college days, I think of the many weary hours I spent listening to discourses on the pharmacology of a whole list of drugs which I have never prescribed and have never known any one who did prescribe them. What seems to be imperatively demanded is an accurate, comprehensive and detailed knowledge of a small number of standard drugs, and especially the precise indications for the use of each in pathologic conditions, including a thorough drill in the practical minutiæ of prescription writing.

A little serious, thoughtful consideration along the lines I have so

imperfectly sketched will make it clear that, viewed from the standpoint of scientific medicine, we can advantageously dispense with the overwhelming majority of the proprietary nostrums which are so freely prescribed. I would that I might end this discussion of this subject here. There is, however, another phase of the matter which appeals very strongly to me and to those who believe with me in the dignity of the medical profession. It is a painful thing to reflect on the fact, for fact it surely is, that the traditional esteem in which the medical profession has always been held is steadily lessening day by day and year by year. There was a time, and not so many years ago, either, when our profession was ranked as the learned profession. Have we all, down in our inmost hearts, the feeling that our patients regard us in that light to-day? Notwithstanding the fact that the medical man of to-day must have mastered many times the knowledge which but a few short years ago was deemed sufficient, notwithstanding the fact that the medical man of to-day must and does master many times the amount of knowledge required in the sister professions, yet in spite of all this the ancient dignity and esteem in which medicine was held is slowly dwindling.

Let us admit that the commercializing tendencies of the day are, in part, responsible for this, yet there still remains the unquestioned fact that we ourselves, as a profession, are responsible for the most of it. Why? Our patients know nothing of how much knowledge the physician is possessed, except in so far as they see it practically displayed in his advice, and more especially in his written prescriptions. Imagine an educated, intelligent, wide-awake layman being examined by his physician and bearing away perhaps, as a sole result of such examination, a prescription for some one of the nostrums. What will be the patient's opinion of the physician who has signed his name to a prescription for Gray's Glycerine Tonic, Freligh's Tonic, Seng or others of that ilk? I suspect that he will put the medical knowledge of the physician on a par with the medical knowledge of the corner apothecary, who has given him similar advice gratis on sundry occasions. Furthermore, you may depend on it that the patient who has once had given him by his family physician some nostrum with a high-sounding title and absurd therapeutic claims will promptly take the absurd claims at their par value, and the next time he is ill will proceed to the nearest drug store, buy some more of the same nostrum for himself and recommend it to his friends as having been given to him by Dr. So-and-So, and so many a patient is led to that most pernicious habit of self-drugging.

The druggist who fills the prescription often knows its real worthlessness better than the physician himself. He says to himself: "I can do equally well," and then turns counter prescriber. The ceaseless repetition of this sort of thing has degraded, in the eyes of the laymen, both physician and pharmacist until they are regarded as little better than retail nostrum peddlers. If every Tom, Dick and Harry feels himself privileged to slap his family physician on the back and call him "Doc," with about the same amount of respect, or less, than he would show his

hostler, let not the physician complain, for he is, to a great extent, responsible for this state of affairs.

Let us freely admit in our professional family gathering that we have been, and are being, made the cat's paws of the nostrum men, who laugh at us behind our backs. Through our own indifference we have been led into becoming so many detail men for these nostrum vendors, and, in so doing, we have taken one step, and that a very long step, indeed, away from the time-honored traditions and dignity of the science and art of medicine. I am not one of those who believe that the present downward trend of medicine in public esteem represents its permanent place; on the contrary, I think that even now the tide is turning and our profession is coming into its own. The very name "Doctor" implies learned, and just so surely as the standard of medical attainments is going onward by leaps and bounds just so surely will medicine regain her true place as supreme in the learned professions.

The first practical step towards this end seems to me to be the choking out the nostrum evil, a parasite which has had its origin in the indolence and indifference of the medical profession. Success in this direction will be a comparatively simple matter once we have recognized the true situation. A very small part of the knowledge and energy which every physician is constantly giving to his work would, if applied to the eradication of this evil, do away with it in a very short time. Indeed, there are already signs of improvement. In another city where the nostrum evil had reached, a year or so ago, an even worse stage than in Chicago, I find from the last two hundred prescriptions, taken consecutively, but twenty-one calling for proprietaries. This number is, of course, still many times in excess of the justifiable proportion, and yet it shows the diminution to one-half or one-third of that which but recently obtained. All that is necessary is to arouse the profession thoroughly to the exact situation and, as it always has done, it will act promptly and efficiently and wipe out this blot on its fair name.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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AUGUST, 1906.

THE RENOVATION OF THE ADVERTISING COLUMNS OF DAILY PAPERS CIRCULATING IN THE STATE OF ILLINOIS.

On July 3 the following letter was mailed to the leading daily papers in the various cities of the state and of St. Louis which are most widely distributed in the State of Illinois. In answer to this letter the following communications have been received. It seems that the conscience of a number of the advertising managers has been awakened on this matter and that it needs only active effort on the part of the better class of citizens to secure quite a noticeable improvement in the advertising columns of all daily papers. We commend this work to the various county societies and shall be glad to give place in THE JOURNAL to resolutions and letters bearing on this topic:

Advertising Manager.

Dear Sir:—I have just received a copy of *Printers' Ink* for June 27, 1906 and have been greatly interested in reading what the advertising managers of the various New York dailies think concerning the policy of printing personals, advertisements of specialists in diseases of men, announcements of get rich quick concerns, wild cat mining schemes, clairvoyants, help for ladies in trouble, and other advertisements that are usually denominated fakes. It appears that very few of the New York managers permitted ethical considerations to play any part in determining the paper's policy. Notable exceptions are the *New York Times* and *The Sun*.

Representing the Illinois State Medical Society, the largest and most influential professional body in the West, the members of which are vitally interested in the character of the daily papers entering the homes of the people, I beg to inquire what the attitude of your paper is towards such so-called "fake" advertisements as are listed above. First, do you exercise any supervision or censorship over such

advertisements submitted to you? Second, do you think it the function of a newspaper to present its readers with only reliable advertisements; third, do you adopt the policy of taking advertisements indiscriminately, leaving your patrons to use their own judgment concerning them?

An early reply for publication in abstract in the ILLINOIS MEDICAL JOURNAL will be greatly appreciated. Yours very truly, EDITOR.

THE PEORIA JOURNAL.

Dr. George N. Kreider, Editor ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Dear Sir:—This is in reply to your esteemed favor of July 3d. The writer believes that no newspaper can reasonably assume the entire responsibility for all of the advertising that appears in its columns. Advertising space in a newspaper is a public utility, the same as any public service corporation. Any publisher must exercise a certain amount of discretion in accepting advertisements, in protection of his own interests, but the moral responsibility for the truth or falsity of an advertisement lies entirely with the advertiser. When an advertiser buys space in a newspaper, it becomes his property and unless he violates the postal laws or the moral laws, it is not the office of the publisher to dictate to him how he shall use his space. We believe that it is not right for a publisher to accept advertisements that he positively knows to be fraudulent. *The Peoria Journal* will not accept such advertisements.

If there is any further information which we can give you along these lines, kindly let us hear from you. Yours very truly,

DAILY JOURNAL CO.
ROSS F. WALKER, *Advertising Manager.*

THE CHICAGO RECORD-HERALD.

ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Gentlemen:—Replying to your favor of the 2d, the *Record-Herald* tries to be very discriminating in accepting advertising for publication. We eliminate all medical advertising of a questionable character, and all bucket shop and questionable financial advertising. This runs into a great many pages in the course of a year, but even with all the care that we can exert there will creep into the columns from time to time, advertising that had we known in advance of its unreliability we should not have published.

You must realize that in the publication of a daily paper everything is hurried and action must be taken on the instant, so that unless we have absolute knowledge of the unworthy character of the advertiser, we accept the copy, edit it *under our rules*, and discontinue, if we later learn of its unreliability.

If there is anything being published in the *Record-Herald* at the present time that you have reason to question, we will be pleased to have you point out the same to us, that we may discontinue if the circumstances warrant it.

Yours very truly, GIRARD PIERCE,
Business Manager.

THE SPRINGFIELD STATE REGISTER.

Dr. George N. Kreider, Editor ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Dear Sir:—In answer to your inquiry of July 3d, regarding censorship of advertising, will say we watch our advertising somewhat closely and reject all advertising for fake concerns, as far as we can. We do not insert advertising for "Ladies in trouble," "General debility," "Matrimonial agencies," "Guessing contests," "Get rich quick schemes," etc., and we insist that all advertising for cures for male or female diseases be couched in language that will not be offensive.

In regard to mining or other ventures, we draw the line, if we think they are fraudulent. But, in spite of considerable vigilance, some things are overlooked and advertisements work in that we do not want to publish. In the course of a year, we turn down several hundred dollars worth of business that we see inserted regularly in the metropolitan papers. I do not know that it pays in dollars and cents to refuse such advertising in a daily paper, as the papers that insert it have much larger circulations than we have and they do not seem to be excluded

from any place on account of such advertising. Be that as it may, we refuse considerable business which does not seem legitimate. Yours respectfully,

ILLINOIS STATE REGISTER.
THOMAS REES, *Manager.*

ILLINOIS STATE JOURNAL.

Dr. George N. Kreider, Editor ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Dear Sir:—Replying to your inquiry of the third inst., in regard to the policy of *The State Journal* in the publication of medical advertisements, we have to inform you that our policy is not to publish what are known as "objectionable" medical advertisements, or advertisements of clairvoyants and others generally described under the title of "fake." We sell space to local doctors, popularly known as "advertising doctors," but reserve the right to exclude anything of an objectionable character that might be offered in their copy.

The advertising matter we publish for members of the State Medical Society is confined strictly to what is known professionally as "ethical" advertising for which the newspapers receive no remuneration.

We do not feel disposed to pass judgment upon the policy of other newspapers in publishing or refusing to publish advertisements of any kind. The daily newspapers do not all cater to the same class of individuals, and publishers' ideas of business and propriety differ widely in different offices. Very truly yours,

ILLINOIS STATE JOURNAL COMPANY.

THE CHICAGO CHRONICLE.

Dr. George N. Kreider, Editor ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Dear Sir:—In reply to your inquiry of recent date, I desire to say that it is a rule of *The Chronicle* office never to accept objectionable medical advertising. A great deal of this is presented in the course of a year, but it is invariably rejected. This applies not only to large numbers of doctors who are obviously engaged in illegal practices, but to that extensive variety of advertisers whose announcements are in themselves offensive to decency and good taste. Yours truly,

H. W. SEYMOUR, *Publisher.*

THE ST. LOUIS REPUBLIC.

Dr. George N. Kreider, Editor ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Dear Sir:—Answering your favor of the 2d inst., I have to advise you that all copy for advertising is received by the *Republic* subject to the publisher's approval and, in this reservation, all publications are carefully scrutinized for anything improper or for dishonest representations. There is no week in which some copy is not materially changed or wholly rejected. Yours truly,

A. K. HAMMOND,
Advertising Manager, St. Louis Republic.

THE CHICAGO DAILY NEWS.

The ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Gentlemen:—Replying to your inquiry of July 2d, we beg to say, that the best answer to your various inquiries is contained in the paper itself. We are sending you under separate cover a sample copy of our paper each day for one week. We have no Sunday issue. Note our "personal" column, where nothing of the objectionable sort is ever admitted. We publish the advertisements of doctors, but the copy is thoroughly and carefully edited. We have no advertising of the "get rich quick" concerns, the "wild cat mine" schemes, "clairvoyants" nor the other classification which you designate.

In the attempt to protect our readers from the dangerous speculative schemes, since the first of January of this year, we have excluded from our columns about five pages of such advertising which has appeared in other Chicago papers, a very considerable part of which has been offered to us and, in some cases, great urgency used to secure the publication. In the case of a great deal of other advertising included in this lot, while it has not been offered to us, we feel confident that we could have secured most of it, if we had been willing to have gone after it in active solicitation.

We exercise supervision and censorship over all advertisements received by us and, if they are not in accordance with our views, we return them to the advertiser, either with our refusal to accept them or with our suggestions of a necessitated change of copy. We think it the duty of a newspaper to protect its readers in connection with its advertising. We do not adopt the policy of taking advertisements indiscriminately and leaving our patrons to use their own judgment concerning them. Very truly yours,

VICTOR F. LAWSON.—*Rogers.*

THE CHICAGO TRIBUNE.

Dr. George N. Kreider, Editor ILLINOIS MEDICAL JOURNAL, Springfield, Ill.

Dear Sir:—*The Tribune* excludes from its classified columns all personals of the character referred to in *Printer's Ink*, and all medical advertising. It does not carry the advertising of any proprietary medicine which pays the internal revenue liquor tax—or which, under the new pure food law, is labeled as containing morphin, opium, acetanilid, etc. Investigation will show you that a wider variety of advertising is excluded from *The Tribune* than from any other newspaper in the country. This is in pursuance of the policy which I inaugurated some fifteen months ago and which will be fully effected before fall.

Advertising which would not be accepted by us is run in the papers to which you refer. Truly yours, MEDILL MCCORMICK, *Publisher.*

ANTI-NARCOTIC LEGISLATION IN ILLINOIS.

The legislative committee of the Illinois State Medical Society recently had a meeting with members of the Chicago Retail Druggists' Association, and considerable progress was made in formulating a law having for its object the state regulation of the sale of narcotics. The physicians present were given salutary advice by William Bodeman, ex-president of the State Board of Pharmacy. He said that the druggists would co-operate more heartily with the physicians if they, in turn, would not prescribe proprietary medicines, the contents and quantities of which they were ignorant. A joint committee of physicians and druggists, consisting of Drs. J. V. Fowler, Robert B. Preble, M. L. Harris and W. K. Forsyth, A. C. Storer and V. H. Chandler, was appointed to confer on the proposed anti-narcotic legislation which is to be introduced at the next meeting of the State Legislature.

MORAL CAMPAIGN INAUGURATED BY THE ILLINOIS PHARMACEUTICAL ASSOCIATION.

Mr. William Bodeman, of Chicago, has announced, in the Bulletin of the Chicago Medical Society, that a society on moral hygiene was originated recently in Chicago and, among other things, it was decided to publish and distribute bulletins for the education of the public. During the annual meeting of the Illinois Pharmaceutical Association, which convened at Peoria June 19-21, a motion was made and unanimously carried to aid in every possible way this social hygienic movement. It was particularly suggested that druggists should abstain from attempting to treat venereal diseases and that they were to assist in distributing bulletins to the parties most interested. Probably no class of citizens come in closer touch with offenders of this class than do the druggists, and a movement such as has been outlined by the Druggists' Association should certainly result in a movement which will be far reaching in its effects.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The regular meeting of the society was held June 11 at the Elks Club, with President Grimes in the chair. Those present were Drs. Ashton, Becker, Bates, Christie, Ericson, Grimes, Hart, Koch, Knapp, Nickerson, Noakes, Rice, Robbins, Rosenthal, Shawgo, K., Wells and Worley.

The committee on consolidation with the Quincy Medical and Library Association was granted further time. Dr. W. D. Walker was elected to membership. Report of Delegate Nickerson on the State Society meeting was heard and accepted. The doctor very modestly mentioned his election as first vice president of the state society. A resolution was introduced bearing on contract practice of all kinds. This matter after some discussion, was referred to a committee of three, with instructions to report at the next meeting of the society. The matter of old line and other insurance examinations was also turned over to the committee. Dr. John A. Koch was appointed as Adams County representative for the Medical Defense committee. Adjourned.

GEORGE E. ROSENTHAL,
Secretary.

The regular monthly meeting of the Adams County Medical Society was held in Quincy at the Elks Club, July 9, at 11 a. m., with President Grimes in the chair. Those present were Drs. Ashton, Becker, Center, Christie, Collins, Ericson, German, Gilliland, Grimes, Heoney, Knapp, Knox, Sierle, Liesen, Montgomery, Nickerson, Rice, Robbins, Rosenthal, Shawgo, J. B., Shawgo, K., Wells, Williams, G. G., Williams, W. W. and Zimmerman. Two applications for membership were received. Dr. E. B. Montgomery spoke briefly in regard to his European trip, during which he attended the session of the International Medical Congress at Lisbon. The sessions were successful in every respect, the foreign guests receiving much attention. Dr. Montgomery's paper on Lateral Section of the Pubes, in the section on Gynecology and Obstetrics, received its deserved share of attention and discussion.

The following resolutions were presented by a committee appointed for that purpose, the idea being to adopt them as a portion of the by-laws, if they were found suitable:

Resolved, That Article II of the appendix, known as the fee bill, is hereby amended by striking out the fourth line and substituting, "examination for all life insurance, $5.00."

Resolved, That it is derogatory to the good of the medical profession and detrimental to the public health, for any member of this society to bid or contract for any form of medical services below the popular rates, as embodied in the official fee bill. Any member breaking this rule shall be subject to disciplinary proceedings, as provided for in the by-laws, and shall be debarred from aid and counsel of its members.

Resolved, That it is understood that "all examinations for life insurance" means both fraternal and old line companies, but not the inspection of the industrial department of any such companies.

The resolution was widely discussed, as in its present form it was not considered acceptable. It was again referred to committee for report at the August meeting. Adjourned.

GEORGE E. ROSENTHAL,
Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held June 13, 1906, with the President, Dr. C. S. Bacon, in the chair. Dr. W. C. Lusk, of New York city, read a paper (by invitation) entitled

CASE OF EXCISION OF THE RECTUM FOR CANCER, WITH PRESERVATION OF NORMAL ANUS. ILLUSTRATIONS OF SURGICAL ANATOMY OF THE OPERATION. ANATOMICAL STUDIES RELATING TO A PROPOSITION TO EXCISE RECTUM, UTERUS AND PART OF VAGINA, EN MASSE, ABOVE PELVIC FLOOR.

WILLIAM C. LUSK, M.D.

NEW YORK.

(*Abstract.*)

Twenty-nine illustrations were shown. The anatomical studies were made with a view of determining the possibilities of a wider removal of the pelvic tissues in cancer of the rectum. Advocates of wide local excision of cancer of the uterus are Ries, Wertheim, Sampson, Schauta and Clark; of the prostate, Young; and of the bladder, Watson.

The studies shown illustrated surgical anatomy of excision of the rectum for cancer situated well above the pelvic floor in the female, from three different standpoints, the writer emphasizing the third proposition as seeming to present the most promising possibilities towards improving the technique. 1. Surgical anatomy of the operation of excision of the rectum alone, by the combined coccygeo-perineal and abdominal routes, which was the operation performed on the case here reported. 2. Surgical anatomy relating to a proposition to excise the rectum, uterus, and part of the vagina, en masse, above the pelvic floor by the combined coccygeo-perineal and abdominal routes. 3. Surgical anatomy relating to a proposition to excise the rectum, uterus, and part of vagina, en masse, above the pelvic floor by the abdominal route.

History.—The case was one which had had symptoms for eight months preceding the operation and which presented, in the rectum, a hard ulcerated tumor situated anteriorly, its lowest palpable limit being one and one-half inches above the internal sphincter, from which level the tumor extended upwards for about four inches. Pathological report: Colloid carcinoma.

Operation, Sept. 6, 1905. The approach was through the coccygeo-perineal region and a median celiotomy wound. The former region was exposed by a horse-shoe incision, through which the coccyx was removed and the levator ani split. The sacrum was not resected. The muscular coats of the bowel were sectioned below, just above the internal sphincter, and the inner coat, after having been shelled out of the anal canal, was cut off at about the pecten. The proximal end of the sigmoid, closed with a clamp and liberated by division of the meso-sigmoid, was brought through the sphincters and sewed to the cut anal margin. The clamp was left on for a day. Course. The bowel end sloughed and the patient recovered with a stricture of the anus and a fistulous opening into the vagina.

Observations.—Microscopic examination of the specimen showed that all of the cancerous tissue was not removed. A hysterectomy in addition would not have eliminated all the disease. A wider dissection close to the pelvic wall combined with a hysterectomy and the simultaneous excision of the posterior and lateral portions of the vagina, together with the mass of lymphatic tissue connecting the vagina with the rectum on either side, seemed to be the only possible operation which could have given hope of a complete eradication of the disease in this patient.

The action of the external sphincter was in no wise impaired. The posterior horse-shoe flap, with removal of the coccyx and splitting of the levator ani in the posterior median line when the sphincters can be saved, gives a good opportunity for strong repair of the pelvic floor, maintains the integrity of the nerves of the external sphincter, and gives a line of union of the wound removed as far as

possible from the danger of any infection from the anus. If the operation of excision of the rectum be performed entirely from below, the treatment of the vascular meso-sigmoid must, of necessity, be quite in the dark, the extent of the disease cannot be properly determined, and an extensive resection of the sacrum renders liable injury to the sacral nerves as well as the subsequent occurrence of hernia. For the avoidance of these complications, the median abdominal incision seems a simple and unquestionably desirable alternative. In connection with the abdominal incision there arises the question of preliminary colostomy. If this is practiced, a subsequent abdominal incision would, of course, be interdicted. In the opinion of the writer, the intra-abdominal portion of the operation and the construction of the artificial anus at the proper situation, should be done simultaneously.

1. Surgical anatomy of the operation of excision of the rectum alone by the combined coccygeo-perineal and abdominal routes, (which was the operation performed on the case here reported). The anatomy of simple excision of the rectum was illustrated for two reasons, first, for the sake of clearly establishing the operative steps of this operation, and, second, for the purpose of comparing the amount of lymphatic tissue removed by this operation, in which the laterally entering vessels and nerves are tied and severed close to the rectum, with that removed by an operation contemplating the excision of the rectum, uterus, and part of the vagina, en masse, in which the laterally entering nerves and vessels are severed close to the pelvic wall.

2. Surgical anatomy relating to a proposition to excise the rectum, uterus, and part of vagina, en masse, above the pelvic floor, by the combined coccygeo-perineal and abdominal routes. The vessels and nerves entering the rectum and vagina laterally are isolated and tied close to the pelvic wall, through the horse-shoe opening below.

The Separation of the Ureters.—A way to do this anatomically is shown in Figures 18 to 23. Sampson has investigated the blood supply of the ureters. He emphasizes the danger of interfering with the blood supply of the ureter as a result of stripping from it diseased tissues, particularly if the arteries entering this portion of the ureter are tied. He also emphasizes the importance of preserving the fibrous sheath of the ureter.

An incision of approach to the region behind the rectum was shown, made in a line along the left side of the fifth lumbar vertebra and promontory, through the peritoneum, down upon the terminal branches of the inferior mesenteric artery. The superior hemorrhoidal artery lies upon a distinct layer of fascia, which should be carefully incised along the right side of this vessel. Through this incision, an easily separable space is entered, by the opening up of which the entire bowel, together with its vascular supply, can be separated forwards from another thin layer of fascia covering the upper portion of the sacrum and fifth lumbar vertebra, and extending around laterally over the structures of the pelvic wall. In the latter layer of fascia lie the hypogastric plexus, and the sympathetic nerves passing off to either side. If this plan of separation is followed out, the ureter on either side, lying in its fibrous sheath as it crosses the iliac vessels, is turned outwards in the peritoneum, and the internal iliac artery is easily exposed for ligaturing if desired. Care should be taken not to injure the left iliac vein, which passes obliquely across the front of the body of the fifth lumbar vertebra, lying beneath the fascia which supports the sympathetic nerves.

The Treatment of the Sigmoid Flexure.—The writer proposes a systematic method of freeing the sigmoid loop along anatomical lines. There are two structures of the meso-sigmoid which limit the distance to which the proximal end of the severed sigmoid can be carried. One of these is the entering vessels and the other is the peritoneum. Figure 24 shows how the intact sigmoid artery would prevent carrying the end of the divided sigmoid to a distance greater than the length of the vessel. Therefore, to mobilize the end of the sigmoid, this vessel must be divided. The restraining meso-sigmoid should likewise be cut on either side and this should be done near its root, so as to leave the vascular arches on the bowel side of the division, which would give the freed intestine the greatest possible chance of preserving its arterial supply. The peritoneum

should not be included within the grasp of any ligatures used for tying the vessels.

3. Surgical Anatomy Relating to a Proposition to Excise the Rectum, Uterus, and Part of the Vagina, en masse, Above the Pelvic Floor, by the Abdominal Route.—An operation of this sort appeals to the writer, from an anatomical standpoint, as the embodiment of the best technique for removal of the rectum, uterus, and part of the vagina, in cases where the bowel can be severed in healthy tissue above the internal sphincter. By tying and severing through a median abdominal incision, the structures entering the rectum and vagina laterally, out at the side wall of the pelvis, after having first separated the ureters, the rectum and vagina can with perfect ease be isolated down to the pelvic floor. It, then, would seem a simple proposition to cut the vagina across, clamp the rectum close to the pelvic floor between two angular clamps, one introduced through the vaginal opening and one from above, and to sever the bowel between them. Illustrations were presented showing how the structures entering the rectum and vagina from the side wall of the pelvis could be isolated for tying through a median abdominal incision. Edebohls successfully employed the approach by an anterior median abdominal incision for the excision of a high seated cancer of the rectum.

DISCUSSION.

President Bacon asked Dr. Emil Ries to open the discussion on this paper.

Dr. Emil Ries:—Unfortunately, I did not hear this entire paper; I only heard the last part of it. The essayist seems to accept the view of Sampson with regard to the necessity of preserving the sheath of the ureter in operations for carcinoma of the uterus. Where I have dissected out the ureter in the pelvis, I have not respected the sheath of the ureter. I have laid bare the ureter completely, up to the point where it crosses the iliac vessels. I have had only one ureteral fistula, and that closed spontaneously. According to the statement of those authors who consider it necessary to conserve the sheath of the ureter, one might expect ureteral fistula to occur in all cases where the sheath is dissected out. But such is not the case. The method which I see pointed out here seems to me to be a little less radical than some of the methods which have been followed by myself and others in so far as it leaves a good portion of stumps, whereas, I think in order to get the carcinomatous tissue in one mass, and in order not to run the risk of carrying carcinoma from cut surfaces into healthy pelvic tissue, it would be advisable to operate from healthy tissue toward the carcinomatous tissue, that is, to begin the dissection on the wall of the pelvis and work inward. If one desires to do a radical operation, with the removal of the glands, the best method is to begin the dissection over the external and common iliac arteries, and work inward, so as to get all of the carcinomatous tissue out *en bloc*.

Dr. Lusk's beautiful drawings have interested me greatly, and I shall take great pleasure in reading his paper when it is published. Had I heard the entire paper, I might be able to say more about it.

Dr. J. Clarence Webster:—The experience of those who deal with cancer of the rectum is pretty bad, inasmuch as the tendency to recurrence of the disease after removal is very great. Work such as Dr. Lusk has presented to us this evening is important in emphasizing the necessity of understanding the anatomy of the female pelvis, as a preliminary to thorough surgical work.

In regard to the extensive operation of Wertheim and Ries, I am certain that one great reason for the slowness in adopting it, is not so much the length of the procedure as the general ignorance of the anatomy of the deep portion of the pelvis, on the part of those who make a special study of this part of the body. In questioning students of anatomy regarding this matter, I have only found two who had made a dissection of the fasciæ of the pelvic floor. We know, from experience, that students do not study the pelvis as they should, consequently, the surgeon, who is not expert in the anatomy of these parts, is a little shy in carrying out extensive work which implies a thorough anatomical knowledge, and, in removing the rectum, the surgeon is apt to be satisfied with taking away the bowel, disregarding surrounding tissue. This, undoubtedly, is a

wrong procedure, and it is quite evident that this work of Dr. Lusk's is a hint in the right direction, namely, that those who wish to carry out thorough operation procedures in carcinoma of the rectum or vagina, must visit the dissecting room and work on the cadaver.

President Bacon:—We are fortunate in having with us this evening a teacher from Europe, a gentleman who is not only known as a teacher and operator, but is especially known in Europe as an authority on the pelvic connective tissue, a subject which is allied to the matter under discussion this evening. I hope Professor von Rosthorn, of Heidelberg, will favor us with a few remarks.

Professor von Rosthorn, of Heidelberg:—As I am not able to express myself very clearly in English, you must excuse me if I should fail to make myself understood.

I have taken great interest in the paper of Dr. Lusk. It comes very near to our own intentions in gynecology. It is undoubtedly known to you that we in Germany, in cases of cancer of the uterus, follow out the principle of doing more extensive work than we have heretofore done. I am glad to know that Dr. Ries, one of your members, is a pioneer in this direction. We have followed him in Europe. Wertheim, a man of very vast experience, has operated on a number of these cases, doing extensive operations. He has not only operated on a large number of cases, but he has studied all of the details of them. He has made microscopical examinations of the parametric tissue in every case, and of the glands in every case, for the purpose of determining how far the cancerous process extended, and how far it was necessary to go to remove all of the disease. He pointed out that unless an extensive operation was done in cancer of the uterus, there would be recurrence of the disease sooner or later. This was unavoidable. He has shown that most of our bad results have been due to operations not having been radical enough, particularly in cases of vaginal total extirpation of the cancerous uterus. Now, we strive to do better and more thorough work. While we have not advanced in this direction very much, we have learned a great deal about the pathology of uterine cancer. I do not suppose that there is any organ in the body which has been studied so well as the uterus in relation to uterine cancer.

It is now nearly ten years since here in America Dr. Clark did the first extensive abdominal operation for this disease, and you all know that Kelly adopted this method for a certain time, then gave it up. He returned to the vaginal operation, but now they are doing in Baltimore, I understand, all abdominal operations in these cases. This shows that we are not as yet at the end of this work. It is very essential to get these cases early, and I agree heartily with the closing remarks of Dr. Lusk, that we must have early diagnoses in these as in other cases of cancer. Cases of cancer of the rectum and of the uterus, organs which are hidden, are dangerous because, as a rule, we get them too late. Patients do not consult physicians until the symptoms of the disease are fairly well advanced. Early diagnosis will undoubtedly influence us in doing a more extensive operation to guard against recurrence.

We should remember that we are able now to distinguish between those cases in which the disease is confined to the uterus, and those in which the disease has already spread beyond that organ macroscopically, because when the connective tissue is hard to the feel, it must be cancerous. The abdominal operation is rapidly supplanting the vaginal in cases of cancer of the uterus, as more extensive operations can be done by the former route.

Another point is with reference to taking out the glands in these cases. It is difficult to do this. We can not remove all of the disease with the glands in every case; although we study them thoroughly and know the anatomy, we are not always sure that we take out all of the glands. The removal of the glands complicates the operation very materially; we have a higher primary mortality from their removal. There is no question about that.

As a therapeutic principle, however, we should take the glands out because we find them so frequently involved. I have operated on 140 cases of cancer of the uterus abdominally, and of that number about 40 per cent. showed involve-

ment of the glands in the cancerous process. That is a high percentage. Other surgeons have found the glands involved in 33 and 35 per cent. of their cases. I take it, our position in this matter at the present time is about this: In these cases where we find the uterus and adjacent glands involved, we should remove them, as far as possible. On the other hand, there are cases in which the only organ affected is the uterus, and in these we should remove as much as possible of the connective tissue in which the lymphatics are and leave the glands. Speaking for myself, in the future I am going to study, as I have been doing, the morphology of cancer of the parametria, and of the glands in every case, and considering the short time I have been working at it, I have found many interesting facts from which, with increased experience, I hope to draw some conclusions. I believe there will be certain cases of which we can say from the morphology, from the starting point, that vaginal extirpation or abdominal extirpation with the adjacent neck of tissue will suffice; while in other cases we must go further and do a more extensive operation. We must not content ourselves with taking out the connective tissue, but the glands themselves.

Certain questions have been brought before you in Dr. Lusk's paper concerning which I would like to speak briefly. Some experimental work has been done in my clinic with respect to the nerves of the bladder. We have found that resection of the nerves of the bladder in animals does not interfere with the function of the bladder. We have separated the bladder down to the urethra and all its nerve fibers and ganglia, and we have not seen the slightest disturbance of function of the bladder in animals. Again, we do not peel off the ureters of animals in this extensive operation from the sheath, as was formerly done, because we have had necrosis and fistula in several cases. Now, we leave the ureter in combination with the posterior layer of the broad ligament, and microscopical investigation of the ureter itself shows that it is rarely invaded by cancer.

Dr. Daniel N. Eisendrath:—The paper we have heard to-night is highly interesting, not only from the standpoint of the anatomist, but from that of the practical surgeon. The essayist raised the question in the beginning of his paper as to the practicability of this operation. I do not believe there is any question in the minds of general surgeons that this operation is no longer an impracticable one. It is an operation which the majority of us are performing in a somewhat different manner from that which was described by the author of the paper. The more radical of the operations which we perform at the present time for carcinoma of the rectum are based upon the principle which Professor von Rosthorn has emphasized, and that is, we take no chances as to whether the enlargement of the glands or the infiltrated tissue is of an inflammatory nature or of a malignant nature. Until we have made more exact researches of a large number of cases, such as are being made in connection with the uterus and operations on the breast, and the more radical operations which we are performing at the present time for carcinoma of the tongue and of the lips, we will not be able to draw definite and reliable deductions.

As I understood Dr. Lusk, he suggested beginning the operation from below. I believe a better method is to make the incision and begin the operation from above, and adopt the suggestion which has been made by Hartman, of ligating both internal iliac arteries. These lie alongside the ureter, and can be exposed without much, if any, stripping up of the tissues around the ureter. In this way, we reduce the danger from hemorrhage to a minimum. It is on the same principle as that followed by Crile, in his operations for the removal of carcinomatous glands of the neck. He has suggested putting clamps temporarily on the carotid arteries. We then remove the sterno-cleido-mastoid muscle and the deep lymphatics, and as much as possible of the internal jugular vein. The same principle we apply practically to our surgery of the rectum. Instead of putting a clamp on the upper end, and bringing it down toward the rectum, I believe it is better policy to ligate it with silk, because we will thereby avoid trouble later from sloughing of the proximal end of the gut. (Here Dr. Eisendrath demonstrated his method of proceeding in these cases.)

Dr. A. J. Ochsner:—The removal of the carcinomatous rectum is by this time

an old operation which has been performed by those who operate frequently a very large number of times. Dr. Lusk goes over the anatomy of this region, with its direct application to this operation very thoroughly. That is what we have found in every one of the serious operations, and only after this has happened, is the operation done as it should be. We remember what happened in abdominal hysterectomy, now that everyone is familiar with the anatomy which everyone was supposed to be familiar with before, but was not. It is, so to speak, child's play to do that operation, and so it is with prostatectomy. And so it has been with each one of these operations in succession, and so it will be now with this operation.

Of course, this paper will have to be studied very carefully in order to bring the fruit that it is bound to bring. Simply hearing a portion of it is quite insufficient to give one grounds for a proper discussion. But the principle of the thing is right. Someone has to do it, and I am very glad that Dr. Lusk has done it, and I hope many others will do the same work and enable us to clear up some of the minor points which may, even with this very thorough study, remain somewhat cloudy.

I would caution against the advice which Dr. Lusk has given of leaving a clamp upon the intestine for the purpose of preventing infection from soiling. There are two reasons why this is not good surgery. In the first place, whenever we clamp an intestine, we can not be sure as to the extent of damage which is to follow, as a result of the consequent gangrene. Secondly, intestinal obstruction, no matter from what source or what cause, is a serious matter and a condition which is liable to cause infection when one least desires it. If we obstruct the rectum in dogs, we immediately find colon bacilli in the bladder, showing that it makes the intestine permeable. The only way that infection can be avoided is by having the end project a little beyond the skin. I do not know whether Dr. Lusk stretched the sphincter muscles thoroughly before the operation or not. That should be done, in order not to have any pressure from the sphincter ani muscles upon that portion of the intestine that has been brought through. Another way of overcoming that difficulty is by making a posterior incision through the sphincter, leaving only a semilunar sphincter, and depending upon the later contraction to close the posterior surface, then the recto-vaginal fistula would not have occurred, because there was posterior drainage, and then that posterior opening would readily have healed.

These are minor matters which have been discussed many times before.

We are certainly to be congratulated on having heard this splendid paper.

Dr. Lusk (closing the discussion):—I wish to say that I referred to beginning the operation from above as, seemingly from an anatomic standpoint, the most feasible thing.

The case in question had a cigarette drain behind the bowel. I thought it was due to the accumulation and pressure of a firm fecal mass after the bowel sloughed, that a fistula formed through into the vagina.

I was much interested in what Dr. Ochsner said in regard to the clamping of the bowel. I have clamped it in two cases of artificial anus without any injury, the clamp in each case having been removed when symptoms of intestinal obstruction occurred.

I wish to thank the members of the society for their kind reception of my paper and express my hearty appreciation of the discussion.

Dr. M. Milton Portis read a paper entitled

WHY GASTRO-ENTEROSTOMY IS NOT A HARMLESS OPERATION.

(Abstract.)

There has been such an appalling increase in the number of gastroenterostomies during the past few years, that in the mad rush, not infrequently the conservative indications for such a procedure have been forgotten. The interference with the physiology of digestion which such an operation entails, is not well tolerated. The work which has been recently done, especially the experiments of Pawlow and Kelling, demonstrates that the retention of the food within the acid medium of the

stomach the proper length of time, depends on a spastic condition of the pylorus due to stimulation by the hydrochloric acid. Likewise the flow both of the bile and the pancreatic juice, is brought about by a specific effect of the hydrochloric acid upon the duodenum, and upon it alone. Under condition of gastrojejunostomy, a very small constant stream flows which is far below the demands of intestinal digestion, and as a result, the digestion of fats and albumins is imperfect and a large part is recovered in the stool. Functional disorders and severe diarrheas may come on which may prove fatal.

Near the anastomotic opening, there is not uncommonly developed an ulcer which resembles very closely the peptic ulcer of the stomach. The clinical picture is variable; either the usual picture of ulcer, or, as is frequent, no symptoms may be present until a perforation occurs.

It is seldom that ulcers of the stomach can be excised, for they are frequently multiple, and when single are usually so adherent to surrounding structures that their removal would be dangerous if not impossible. Likewise in hemorrhage of the stomach, the bleeding point or points can seldom be found and most surgeons admit that it is folly to operate while hemorrhage is actually taking place.

CONCLUSIONS.

1. The stomach may be looked upon as an organ for the protection of the bowel. The normal functions can not be improved upon by any operation, and gastroenterostomy is at all times a serious operation.

2. The functional disorders that may seriously interfere with nutrition are due not only to the premature emptying of the stomach, but also to the deficiency of bile and pancreatic juice.

3. The numerous reported cases of ulcer of the jejunum following gastroenterostomy, and their persistence of symptoms, if not fatal termination, lead us to advise the operation only as a last resort.

4. The neurasthenic individuals who suffer from chronic dyspepsia, not only are not benefited by a gastroenterostomy, but are made worse. This also applies to the dyspepsia due to imperfect mastication.

5. The so-called atonic dilatation of the stomach, and gastroptosis either alone, or as part of a general enteroptosis, never are benefited by a gastroenterostomy.

6. No operation is indicated in acute ulcer, unless perforation is imminent or has occurred.

7. Gastroenterostomy is not indicated in chronic ulcer of the stomach, unless there are repeated small hemorrhages which menace life, grave adhesions, or persistence of severe symptoms even after thorough medical treatment.

8. Gastroenterostomy should always be done where the natural evacuation of the stomach is impossible. This includes the cases with mechanical obstruction due to pyloric stenosis, and malformations of the stomach due to hour-glass contractions or disabling peri-gastric adhesions.

DISCUSSION.

Dr. Arthur R. Elliott:—Dr. Portis has very clearly defined the disadvantages of the operation of gastroenterostomy, and has detailed the indications for its performance. The validity of his objections to the operation can hardly be questioned, since they are founded on well established physiology, and on the results of experimental observations. It seems to me, however, that it is only common justice to the operation to offset these considerations. The testimony of those experienced in the performance of plastic work on the stomach is, I think, in accord as to the ultimately good results following gastric drainage. Wathen, in the *Journal of the American Medical Association* a year ago, quoted ten of the most prominent surgeons engaged in this work, all of whom unite in claiming excellent ultimate results. This list includes such names as Robson, Moynihan, von Mikulicz, Kocher, Czerny, and in this country, Murphy, Ochsner, Mayo, Deaver, and Park. It is unlikely, therefore, that the considerations which Dr. Portis has so clearly stated will stand against the necessity for operation in cases which fall within the category of clearly defined indications, such as cases of carcinoma, pyloric stenosis, hour-glass stomach, etc. They do, however, militate

seriously against the performance of gastroenterostomy in cases of functional disturbance. With gastroenterostomy, as with other new methods which have been introduced into surgical, and eventually into medical work, there are radical spirits who are carrying this question of gastroenterostomy too far. This is the case even with men whom we are justified in looking upon as conservative. I quote the following recent instances: Moynihan, in the *British Medical Journal* of September 3, 1905, advocates operation in cases of chronic inveterate dyspepsia, without any care to designate the type of dyspepsia he refers to, or apparently without regard for the large number of functional perversions that give rise to chronic dyspepsia. Hartmann, of Paris, recommends operation for the cure of hyperacidity, with recurrent pyloric spasm. In a prominent medical journal in this country within the last two months there has appeared a report of two cases of gastroenterestomy performed for simple chronic indigestion. This man, who is an excellent operator and prominent in the West, reports these apparently as triumphs of surgery. The patients are said to have made uninterrupted recoveries and have been relieved symptomatically, but it does not seem to me as if experience will justify such heroic measures for the cure of dyspepsia.

In the Section on Practice of Medicine of the American Medical Association held last week in Boston, a speaker advocated the employment of drainage of the stomach in cases of hyperchlorhydria which were obstinate to treatment. When we consider that 50 per cent. of all the cases of chronic dyspepsia, which come under observation, are cases of hyperchlorhydria, and that practically every neurasthenic or hypochondriac, and most cases of tabes have hyperchlorhydria, it reduces the matter of gastroenterostomy in functional gastric disorders to an absurdity. If this advocacy of gastroenterostomy for dyspepsia demonstrates anything, it seems to me it demonstrates that our methods of gastric diagnosis and of gastric treatment for the cure of dyspepsia are carried out imperfectly by the average physician. Good results can be secured under medical treatment, provided it is carried out with sufficient patience and experience, and I say this without any reflection on the brilliant results occasionally secured by operative measures. It is time for us to raise the question of the advisability of gastroenterostomy for the cure of neuroses and functional perversions of the stomach.

Dr. Alfred C. Croftan:—While there are many conditions that lie on the borderland between internal medicine and surgery, in considering this question we should conservatively occupy the middle of the road and stand pat. I think the objections to promiscuous gastroenterostomy on varied mechanical grounds, as enunciated by Dr. Portis, are well taken. There is a clinical side to this question which leads me rather reluctantly to incline a little toward the surgical side in this sense, that frequently it is a matter of impossibility to make a clean-cut diagnosis of a stomach disorder until we have made a hole in the abdomen and have looked at the stomach. That applies in particular to early carcinoma. The more I work in this line, the more I am in accord with other internists and the more skeptical I become with regard to the relative value of chemical stomach analyses in the diagnosis of early carcinomatous conditions. I am rather inclined nowadays to reverse the proposition, so that if I want to diagnose carcinoma, unless I feel a tumor, I am uncertain as to the diagnosis, and even then I am not always quite sure. If a patient has no free hydrochloric acid, but has lots of lactic acid, has the Boas-Loeffler bacillus, and the other things, I am exceedingly afraid to tell a patient that he has nervous dyspepsia, or that he has no organic disease of the stomach simply from an analysis of the stomach contents, because I have seen cases within a month or two months after I said to myself, and with certain reservations to the patient, that he did not have organic disorder of the stomach, develop carcinoma, basing my original opinion on the presence of free hydrochloric acid and more or less normal stomach contents. I lean toward the surgical side in some of these cases without taking the trouble of making a complete stomach analysis, and gastroenterostomy is sometimes undertaken for reasons which are obscure to me, and when this operation is done the patient has at least the benefit of an exploratory incision. If gastroenterostomy is performed by a skillful surgeon, no harm can accrue from it in most cases,

and if it should be one of those cases in which early carcinoma was not discovered, by ordinary medical means, much valuable time will have been saved by an exploratory laparotomy, and the surgeon may decide not to make a simple gastroenterostomy, but excise the beginning carcinomatous tissue.

Dr. A. J. Ochsner:—I dislike very much to take part in all of these discussions, but as Dr. Elliott has referred to my writings on this subject, I will say that I have followed the conclusions that were given very carefully in the paper, and with the exception of the first conclusion, which might be misleading, I believe that all of them are correct.

Gastroenterostomy is admissible only in case of obstruction to the pylorus, either due to carcinoma or to a small ulcer in the pylorus, giving rise to closure by spasm, or because of an obstruction due to the presence of an indurated ulcer in the region of the pylorus. Virtually, those are the two reasons given in the conclusions of the essayist, and they are proper reasons. We must remember that at the present moment, of all the end results that are unsatisfactory after gastroenterostomy, the vast majority come to the internal practitioner, so that he is bound to see the bad results, the results in our unsatisfactory cases. On the other hand, we must also remember that all of the good results of the internal practitioner are not seen by the surgeon. Whenever the internist has permanently cured an ulcer of the stomach, then we as surgeons never see that case. We only see a case that has been cured, and has relapsed, has been cured again, and has relapsed, so that our basis for judgment of the results of internal treatment is not a good one; neither is the basis that the internist has as to the results of surgical treatment proper, because the patients that are actually and permanently relieved by operation will not require further stomach treatment. But there are many such cases that are not relieved by this operation, and there are very good reasons for it. In the first place, no surgeon who has performed a large number of these operations is satisfied with the operations he performs. One of the most skillful, most learned and most experienced of all stomach surgeons, Dr. Mayo, of Rochester, made this statement a few days ago, that so far he had never published an article on gastroenterostomy, in which this treatment was satisfactory by the time the article appeared in the journal to which it was sent. In other words, we are not satisfied with the operation, and it will be a considerable time before we will be satisfied with it. It is different from the operations that are settled. When we talk of herniotomy, we know that we are satisfied with it. We talk of many other operations and know that our results are good because we have reached a point at which we have a proper operation from every point of view. As to gastroenterostomy, we are satisfied with it for the present; we do not grumble over the operation of the past, because it was better than no operation, but it is not the operation of to-morrow, and the principles which were laid down in the paper are perfectly correct. We have to drain the stomach. We have to make gastroenterostomy under certain conditions; but the results can not be good in all of the cases.

There are a few things in the article with reference to peptic ulcer which should be observed, but I will not occupy any more time.

Dr. Emil Ries:—It may be of interest, in connection with this discussion, to report the case of a woman upon whom I operated this morning. A year ago she weighed 200 pounds. She began to have trouble with her stomach two years ago. In October, 1905, she was examined by an internist, who made a diagnosis of functional trouble. In November she was examined by another prominent physician, was treated at the hospital for three or four weeks, during which time repeated examinations of the stomach contents were made. After a diagnosis of functional trouble she was sent to a sanitarium, sent to another hospital, and ultimately landed in my hands a few days ago, after she had lost 100 pounds. She had pain in the stomach, was cachectic, and presented the picture of a case of carcinoma. A tumor could not be felt. I made no attempt to draw conclusions from analyses of the stomach contents, as they had evidently entirely misled two men, who examined her carefully. I preferred to make an incision, which I did this morning, and found carcinoma in the pyloric region about as large as

my fist, ulcerated, and the bottom of the ulcer was attached to the left lobe of the liver, so that I had to be satisfied with a gastroenterostomy. Why do I report this case? Because this woman had a diagnosis of functional trouble made of her case several months ago by competent men. These examinations were made by the most approved methods, and yet the diagnosis was absolutely wrong. That point has to be emphasized in particular. With reference to operating on the stomach, the greatest difficulty we have is not with the technique of the operation, but in making a correct diagnosis, and I wish to add that this difficulty obtains not only before, but during operation. While it is considered very easy by some to make an incision in these cases, it is not quite so easy to say what the trouble is after the abdomen is opened.

I exhibited a case before this society, some five years ago where a diagnosis of carcinoma was made by competent men; where a tumor could be palpated, where hydrochloric acid was absent. The woman had lost 50 per cent. of her former weight, and it was a question whether she would survive an operation. On examination we found a large tumor occupying the pyloric half of the stomach. In that case I resected two-thirds of the stomach, did a gastroenterostomy, closed the duodenum, and she recovered. She now weighs 135 pounds, having gained 100 per cent. On opening the abdomen I could not tell from the specimen without a microscopical examination whether the tumor was carcinoma or not. It is a fact, that, on entering the abdomen, we may find a tumor which looks like a carcinoma, and in addition to the tumor, the characteristic additional signs which we use in differentiating between a benign and malignant tumor. I refer to involvement of the glands. I have operated on a number of stomach cases, where investigation of the glands contained in the mesentery and in the omentum has revealed them to be enlarged, and where the tumor was carcinoma. Still, the glands may have been free from the disease, and were free in one case I reported. In other cases there were enlarged glands, with tumor of the stomach, an entirely benign condition of that organ, and the glandular involvement was misleading. I wish to emphasize the point, that a great many who undertake gastroenterostomy as an easy operation may be misled by the appearance of the glands, and also that it is not so easy to diagnose the nature of the tumor without the microscope.

The title of Dr. Portis' paper is, Why Gastroenterostomy is Not a Harmless Operation. I would like to discuss for a moment why gastroenterostomy is an insufficient operation in many cases. Sometimes it is not harmless, because it is not a sufficient operation. Dr. Portis mentioned cases in which gastroenterostomy has been done for bleeding gastric ulcer, the patients dying from hemorrhage after the operation. There are other conditions which obtain after successful gastroenterostomy which lead to the death of the patient. I refer to cases where gastric ulcer has perforated eight and twelve days after a successful gastroenterostomy. I can refer also to cases where the ulcer ultimately proved to be or developed into carcinoma, where early operation was resorted to, but in which gastroenterostomy was not a harmless procedure because it was insufficient, where resection ought to have been done instead of gastroenterostomy.

Apart from the points mentioned, Dr. Portis' paper is an exceedingly timely one. I see a number of cases that have had stomach operations and who are not a whit better than before these operations. The kind of cases that come to me afterwards are especially those women who have been told that they ought to have their cystic ovaries treated, and in many cases I think gastroenterostomy is done on the same plan or principle as a cervix operation, a retroversion operation, and a floating kidney operation. Gastroenterostomy is seemingly such a safe operation that patients undergo it and recover from it, the mental impression of the operation being very great, in the same way in which an operation for lacerated cervix produces a mental effect on the patient. But though the patients recover from the operation, they are not cured. A great many neurotics who need treatment of their nerves are undoubtedly operated for stomach trouble, when in reality it would have been better for them to have gone to a competent neurologist. That leads to the question of diagnosis before

operation, and it is the hardest question for us to settle. We have to work together to develop our knowledge of this part of surgery and of general medicine, and the more frequently the internist looks into the abdomen when it is open, the better will the surgeon and the internist get along together, and the more frequently will such cases as the first one I reported, of diagnosis of functional trouble subsequently proving to be carcinoma, be avoided.

Dr. Portis (closing the discussion):—In summing up, I tried to be fair to both surgeons and internists. It was after weighing many hundreds of operations, searching out the indications and trying to follow the postoperative results, I drew these conclusions, and tried to emphasize them from the chemical and physiologic side. I may be wrong in detail about some of the conclusions, yet I believe most of them are accepted by many of the eminent men working in this particular department. I think the objections and criticisms of one or two of those who discussed my paper are not objections really to the conclusions or statements that were made, but rather pointed to the deficiency of our knowledge in this particular department, as in other departments of medicine.

Whether or not gastrojejunostomy will remain as the best operation of the future, I am satisfied that some type of operation of that sort will always be done for these conditions, but only when it is strongly indicated.

I wish to thank the gentlemen who were kind enough to discuss my paper.

Drs. Emil G. Beck and John A. Ospray read a joint paper, entitled, Tracing of Fistulous Tracts by Radiography.

DISCUSSION.

Dr. Heliodor Schiller:—I would like to ask Dr. Beck if it is not possible that the bismuth may enter the loose connective tissue and give one the idea of a fistula where no fistula is present? The tissue around the fistula is usually infiltrated and cicatrized, but in some places there may be leakage, and it would be easy for the bismuth to go through the loose connective tissue and give a wrong idea of the branches of the fistula.

Dr. Daniel N. Eisendrath:—This method is a great aid to surgeons in a more or less limited field. That field is one which Dr. Beck has brought up, namely, the tracing of the sinuses, such as may result from tubercular spondylitis and from bone processes.

A better method in my opinion is to trace the direction of the fistula by injections of colored fluid. In tracing the direction or extent of an abdominal or thyroglossal sinus, a branchial fistula, or, still better, a fistula in the ischio-rectal region, we often wish to know in which directions the various branches of the fistulæ go. This is done by injecting either methylene blue, gentian violet, or some other colored fluid. These will stain the entire lining of the fistula and will enable us to follow it out, at the time of the operation, in a few seconds.

Dr. Beck (closing the discussion):—In reply to Dr. Schiller's question, I will say that if the fistula is persistent for some time, its walls will be harder than the material which is injected, so that there will be no loose connective tissue in those fistulæ. They are lined with smooth surfaces. I do not think the bismuth would penetrate an old fistula.

In reference to the remarks made by Dr. Eisendrath, I will say that the injection of colored fluids is useful and is an aid, and so is this an aid. One is not intended to displace the other; both will throw more light on the subject and give us greater aid than one alone.

CHICAGO SURGICAL SOCIETY.

Stated meeting, April 6, 1906. The president, Dr. D. A. K. Steele, in the chair.

TABETIC DISEASE OF THE KNEE JOINT.

Dr. Daniel N. Eisendrath presented two cases of tabetic disease of the knee joint, one in a woman, aged 45, and the other in a man, aged 60. In both cases the most marked pathological feature was the enormous enlargement of the lower end of the femur, as shown by the *x*-ray. In one case, this was so marked as to simulate an osteosarcoma of the lower end of the femur. This latter patient had been sent to him with such a diagnosis. Examination of the patient, however,

confirmed the diagnosis of tabes dorsalis. Another interesting feature of both cases was a marked increase in lateral mobility, especially in an outward direction. This was due to the enormous distention of the capsule, and subsequent stretching of the ligaments. Operative treatment had been advised in both cases on account of this laxity of the joint. Resection of the ends of the bones was indicated in preference to amputation above the knee. A number of cases have been reported in which such typical resections have resulted satisfactorily. Dr. Eisendrath also showed a patient upon whom he had performed nephrectomy for unilateral septic nephritis.

THE TECHNIQUE OF OPERATIONS UPON THE HEAD AND NECK.

Dr. George W. Crile, of Cleveland, Ohio, read a paper, by invitation, on this subject. He said the principal objects sought to be attained in the majority of operations are, a clear field at every step in the operation, the minimizing of hemorrhage and shock, the accomplishment of the particular purpose of the operation, and the avoidance of complications. Hemorrhage should be treated from the separate standpoints of arterial and venous. In the first stage of the operation for excision of the Gasserian ganglion, arterial hemorrhage is of paramount importance; in the second stage, venous. In the excision of a goitre, venous hemorrhage is more important than arterial. In most operations both factors are present. Surgical practice is at present divided as to the best means of controlling each. In one clinic, the patient is operated in the head-up posture; in another in the inclined head-down posture; in another in the horizontal. Some surgeons, in important operations, place a permanent ligature upon the external carotid, others apply methods of temporary closure, while still others depend upon local hemostasis, without any control over the main blood supply. One still sees the practice of the older surgeons, consisting of a dashing operation, followed by quick packing and securing of vessels, disregarding for the moment the loss of blood. Obviously, the methods of control of the arterial and venous hemorrhage are almost diametrically opposite each other.

He first considered the control of the arterial hemorrhage. Four distinct methods may be contemplated. First, that of head-up posture, thereby diminishing the blood pressure and the flow of arterial blood to the operative field. This method is helpful, but, as frequently practiced, if the patient be under full anesthesia, is attended with the danger of sudden and not easily controlled cerebral anemia, besides, the control of the circulation is in many instances not sufficient. If the patient be not under full surgical anesthesia, the surgeon may be seriously hampered in his efforts at a precise dissection. The risks on the one hand and the shortcomings on the other leave much to be desired by this method.

He next considered permanent ligature of the external carotid artery. A study of the literature of the subject will show between two and three per cent. mortality rate from cerebral embolism alone. In many cases of malignant diseases of the neck, the exposure and tying of this vessel requires dangerous handling of malignant tissue. The definite and needless risk of cerebral embolism, and its contraindication in many malignant diseases, handicapped this procedure seriously.

In the third place, he discussed the control of hemorrhage from point to point by means of artery forceps. By this method, a comparatively bloodless operation may be performed, but the objection to its employment is the laborious task of picking up such a large number of vessels in the major operations on the neck, requiring such an increased length of time that it becomes a factor in the production of shock.

Fourth, he took up the temporary closure of the common carotid or the external carotid, with the head-up inclined posture, and the securing of each vessel as it appears. This method embraces the points aimed at in the three preceding. The vessel is closed only temporarily; the head-up posture is maintained, usually a certain precaution against cerebral anemia, which will be discussed later; and all vessels that under these conditions would bleed are secured at each point in the dissection. In certain operations upon the scalp, in which the division of this tissue is extensive, the blood supply abundant, and, perhaps, in addition, it is very desirable to maintain a dry field, a very satisfactory anemia on the plan

of the Esmarch bandage may be obtained by the use of a double layer of rubber dam, applied snugly upon the entire scalp, covering every part of the head and rendering the scalp completely bloodless. The free end may be tucked under, like the application of a turban, and the incision may then be made through the rubber dam, the latter affording a splendid protection of the operative field. This is in many respects more practical than the elastic tourniquet placed around the base. Aside from the use of a rubber dam turban we have no other means for general purpose for the control of the venous hemorrhage than that of the head-up posture.

In operations upon the mouth, including such as excision of neoplasms of the jaw involving the mouth, of the buccal mucosa, of the floor of the mouth, of the tongue, of the hard and soft palates, of the tonsils, and in cleft palate operations, a simple method of tubage of the pharynx, heretofore described by the author, but more recently elaborated, has proven most satisfactory.

DISCUSSION.

Dr. Arthur Dean Bevan saw Dr. Crile operate on a neck case a short time ago in Cleveland, when he employed the general technique he had described, such as the elevated position of the patient's head, with rubber suit, etc., and with this elevated position of the patient's head he was sure that the field of operation was maintained in a condition where there was much less blood, where the dissection was much easier than in any case of neck work he had ever seen. He had been very much impressed with one point in connection with carcinoma work, generally about the face and head, and that was the desirability of ligating the external carotid. He had been a little afraid to interfere with the common carotid, but almost a routine in his work, he had ligated the external carotid in extensive malignant disease of the face, with some considerable satisfaction.

Dr. E. Wyllys Andrews had known about the temporary clamping of the carotid artery for several years, but had never dared to resort to it himself, because he had not actually seen it used. It was perfectly obvious that Dr. Crile had started out in a direction, where there was absolutely no precedent, in the kind of work he was doing on the head and neck. He had created a new field of surgery here. Anyone who would review the literature of the last two years must come to the conclusion that it was almost revolutionary. The comparison that Dr. Crile made with the Halsted operation on the breast and his operations upon the neck explained a great deal. The radical breast operation, as advocated first by Willy Meyer, and later by Halsted, put breast surgery in a new status, and Dr. Crile had created a new surgical status for the neck and head. The speaker had tied one of the carotid arteries many times, dissecting half of the jaw or face, cutting down, and thinking that the only way to make the operation feasible was to tie the common carotid, thereby getting a high mortality, but finally ending by doing no such radical and successful work as had been accomplished by Dr. Crile in the remarkably ingenious steps which he had described.

Dr. A. J. Ochsner said he also saw some of the early work of Dr. Crile in this field. Since that time, he had employed Dr. Crile's clamp in a number of operations, and had used the position which he had demonstrated, and had borne in mind one of the features which Dr. Crile pointed out at that time very forcibly, but which he only hinted at now, especially in operations for the removal of portions of the thyroid gland in cases of exophthalmic goitre. In that particular class of cases, it was of especial value, namely, after thoroughly anesthetizing the patient, elevating the head and leaving the patient in this position during the operation, one could readily complete the operation without any further use of the anesthetic. The anemia of the brain, which occurred as the result of this change of position, would cause the amount of anesthetic which had been given previously to suffice for the entire operation.

Dr. M. L. Harris said that a thorough knowledge of the lymphatic glands and of the territories which were drained into certain lymphatic areas was of great importance. This was nowhere better shown than in the difference in mortality rate from metastases, which are found in cases of carcinoma of the lip and of the tongue. It had long been known that carcinoma of the tongue was much more

malignant than carcinoma of the lip, and that operations for the removal of carcinoma of the tongue were much less successful than those for the removal of carcinoma of the lip. This was due largely to the lymphatic distribution. He emphasized the importance of removing the jugular vein in malignant disease in these cases. This was again impressed upon him recently. Two weeks ago, he did an operation for carcinoma of the larynx, removing the glands in that vicinity. In removing the metastases in the glands of the neck he had to take away also all the vessels, namely, the common carotid, the external and internal carotids, and the internal jugular vein, in one mass.

Dr. Daniel N. Eisendrath asked Dr. Crile the following questions: First, after releasing the clamp following the temporary closure of the common carotid artery, to what extent did hemorrhage follow the taking off of the clamp again from the terminal branches of the artery? Second, in what percentage of his cases, if any, had there been cerebral embolism, following temporary ligation of the common carotid? Third, had he ever performed a preliminary tracheotomy or tracheotomy at any stage at the time of the operation, or, say a week before, as a preliminary step?

Dr. D. W. Graham said, with reference to the removal of the jugular vein, he had been accustomed, when he wanted to dissect out a carcinomatous mass in this region, to cut the vein and muscle just below the tumor, and following down towards the clavicle, as far as was necessary, then ligating below, and turning the other end up with the tumor as high as it was deemed necessary to go. In these cases, he had observed that the lumen of the jugular vein was sometimes obliterated, and frequently partially obliterated, so that, beginning there, it was probably easier to remove the vein down from that point than it would be to start just above the clavicle, although he could see how Dr. Crile's method might be better in some instances.

Dr. Crile, in closing the discussion, and replying to the questions of Dr. Eisendrath, said that it was interesting to note that there was very little hemorrhage after the clamp was taken off. He had never seen a case of cerebral embolism following his method. However, if one squeezed the clamp or clamps too tightly, there might be the possibility of the formation of the embolus. Particularly would a thrombus be likely to be produced, and later embolism, if one were rough in his manipulations. He had not for some time resorted to a preliminary tracheotomy. He followed the teaching of some of his colleagues in putting patients in the upright position as early as possible after operations. In conclusion, he emphasized the point that it was much easier to do the larger operation than the smaller one.

Dr. Norman Kerr read a paper entitled Combined Superior Tibio-Fibular and Astragalo-Fibular Osteoplasty as a Means of Preventing Shortening of the Leg During Adolescence Following Extensive Osteomyelitis. The author reported a very interesting and instructive case at great length. The paper was discussed by Drs. William M. Harsha, A. J. Ochsner, E. Wyllys Andrews, and the discussion closed by Dr. Kerr.

UNIQUE PATHOLOGICAL CURIOSITY.

Dr. William Hessert exhibited an unique anatomical specimen. He had operated upon an infant, five days old. The history was that the baby had not had a bowel movement since birth, and the attending physician had informed him that at birth there was no escape of the meconium. The patient showed the typical symptoms of intestinal obstruction, vomiting, distended abdomen, etc., and was in a low condition. On opening the abdomen, dilated coils of intestine presented, and, in following them down, he found that the ileum ended below in a blind pouch. It was much larger then than it is now. It was filled with feces to almost the size of one's fist. There was no connection between the ileum and the colon. The ileum ended in a blind pouch, and the colon was to the right, greatly contracted. It was impossible to make any sort of anastomosis between the ileum and colon. He opened the blind pouch, allowed the gases and feces to escape, and then sutured it to the abdominal wound. The child died the next day.

Dr. M. Reichmann exhibited skiagrams of interesting cases.

A regular meeting was held May 4, 1906, with the president, Dr. D. A. K. Steele, in the chair.

SYPHILIS.

Dr. Edward H. Ochsner showed a patient to illustrate the fact that the statement, commonly made in textbooks, that potassium iodid, when given in sufficiently large doses, proves or disproves the presence of syphilis, is not necessarily correct. He mentioned several syphilitic patients, who had previously received very thorough treatment with potassium iodid, without benefit. The patient shown was referred to him by a prominent practitioner, who had treated the patient with potassium iodid and intramuscular injections of bichlorid of mercury on the theory that the patient was syphilitic, but as the progress of the disease did not seem to be retarded in any way, he had begun to doubt his original diagnosis. The lesion which involved the nose was so typical of tertiary syphilis that there was no doubt as to the diagnosis; consequently, the patient was put on fumigation treatment with calomel, and potassium iodid internally, with the result that the lesion rapidly improved, and with the exception of a slight persisting deformity, the patient appears to be cured.

DISCUSSION.

Dr. Arthur Dean Bevan inquired whether the fumigation treatment of syphilis is appropriate in all cases. He said that in some cases one method is successful, while in other cases another method of treatment will achieve results. Cases of advanced syphilis would clean up very rapidly under four or five grains of potassium iodid daily, particularly those who were not affected by eighty or ninety grains a day. Some of the tertiary forms of the disease clean up more rapidly under the mixed treatment than under either potassium iodid or mercury.

Dr. L. A. Greensfelder suggested that the proper dose of potassium iodid is the one that produces the physiologic effect, no matter what the size. Until that effect appears, it is impossible to say that the patient had received a sufficient dose. The intravenous injection of a one or two per cent. solution of bichlorid directly into a vein, giving one or two c.c. every day for fifteen or twenty days, is quite efficacious in these cases. He used that method in cases that were under the potassium iodid treatment, and also under the intramuscular injection treatment, and in which no effect was produced. After three or four intravenous injections, the result was quite prompt.

Dr. William Hessert also recommended the intravenous injection method. He now has under his observation a patient who had been treated by all other known methods without result. After about half a dozen injections of 3 c.c. of a one per cent. solution of bichlorid, a very satisfactory effect became evident. The lesions on the skin and elsewhere, which had been very marked, disappeared rapidly.

Dr. Ochsner, in closing, concurred in the remarks of Dr. Bevan, that a method which fails in one case may succeed in another. The fumigation treatment is not a specific for all cases of syphilis, but his experience has taught him that every case that has resisted the potassium iodid, or even the mixed treatment, has responded to fumigation. He would not give an intravenous injection of mercury or any other drug, until he had tried all other and simpler methods of treatment.

NEPHRECTOMY FOR TUBERCULOSIS OF THE KIDNEY.

Dr. William Hessert reported a case of tuberculosis of the kidney in which nephrectomy was performed. The patient made an uneventful recovery, and has since regained her health and increased in weight. The case was discussed by Drs. Bayard Holmes, D. N. Eisendrath and L. L. McArthur.

TUMOR OF JAW.

Dr. L. L. McArthur reported the case of a man, 42 years old, who, eighteen months previously, noticed a tumor in the lower jaw, beneath the left first molar tooth. This tumor involved the alveolar process and body of the bone. It gradually increased in size, becoming about two inches long and 1¼ inches thick. A dentist removed the tooth, which gave very little relief. When the tumor enlarged again, the man went to a physician who lanced the growth. A thick, clear fluid,

mixed with blood, poured out. This was repeated at intervals seven times, with the same result. Pus was never seen. Finally, the tumor increased so much in size that its removal became necessary. The speaker described the operation he did in this case, and said that the tumor he removed was one of those rare forms of odontoma classified as adamantinoma, taking its origin from portions of the teeth buds, and the character of the growth varied with the character of the primary portions of tooth structure which took part in the development of a tooth. Microscopically, on superficial examination, the specimen resembles an epithelioma, but the growth never causes any pain, nor, once well removed, will it recur.

HEMANGIOENDOTHELIOMA.

Dr. McArthur also showed a specimen which he obtained from a case of apparent recurrence of a carcinoma of the breast, in the axilla. The recurrence took place about three months after the breast had been resected. The tumor was of considerable size. The *x*-ray proved ineffectual. Clinically, the tumor presented all the characteristics of a recurring carcinoma. On microscopic examination of the original tumor, it was pronounced a sarcoma. However, the pathologist pronounced it an endothelioma of the perivascular type, a hemangioendothelioma.

Dr. Thomas L. Gilmer thought that the case of tumor of the jaw, reported by Dr. McArthur, taught a valuable lesson. It showed that surgeons should not be too hasty in advising removal of the jaw or sections of it, especially of the mandible, because it produces a very serious deformity, one which is remedied only with difficulty. He referred to several cases of tumor seen by him, odontomas and cyst-like tumors, one of which contained a number of denticles or imperfectly developed teeth.

Dr. D. N. Eisendrath called attention to an article by Bloodgood, in *Progressive Medicine*, of December, 1905, describing a case of tumor of the jaw producing enormous enlargement, which he termed a cystadenoma, which Bloodgood thought is probably the best name for this class of tumor. These tumors are comparable to those occasionally occurring in the ovary. He considered Dr. McArthur's case interesting, because there was only one cyst, whereas in the other cases published there had been multiple cysts, each cavity being lined by a membrane similar to the one in Dr. McArthur's case.

SARCOMA OF THE THIGH.

Dr. A. J. Ochsner reported a case of this kind and showed the leg which had been removed that day. He made use of a method which he said is exceedingly simple and effective. It is a revival of a method in almost universal use fifty or sixty years ago. He read a number of reports of hip joint amputations, which were published in *Virchow's Archiv* about the middle of the last century, which seemed to be so uniformly favorable that he concluded to give the method a trial. It consists in ligating the femoral vessels primarily, and then grasping the other vessels as the dissection is proceeded with. The hip can be amputated in a short time with the loss of almost no blood. The sciatic and the anterior crural nerves in this case were injected with cocain.

A regular meeting was held June 15, 1906, with Dr. D. A. K Steele, the president, in the chair.

CERVICAL RIB.

Dr. William Hessert showed a girl, aged 16, who had applied for treatment of a fracture of the clavicle. On examination, a bony tubercle was found over the inner aspect of the clavicle. This tubercle was the anterior extremity of a bony process which could be followed by palpation backwards and inwards. *X*-ray examination showed a cervical rib.

CARCINOMA OF THE THYROID GLAND.

Dr. A. E. Halstead reported a case of carcinoma of the thyroid gland in a man, 42 years of age, with a negative personal and family history, who had had an enlargement of the neck for about eleven years. During the past few years the tumor had increased in size considerably and other tumors appeared in the neck region. The dyspnea finally became so severe that an operation was necessary.

The operation was done under local anesthesia and all the masses were removed. Microscopic examination of the cervical lymph glands showed an adenocarcinoma. Besides the carcinomatous growth, the tumor mass itself showed nearly all the varieties of goitre, including hypertrophy, colloid degeneration, cysts, calcareous deposits and bone. The patient made a good recovery.

DISLOCATION OF THE METATARSAL-PHALANGEAL JOINT.

A man, aged 18, had his foot caught in an elevator, causing a dislocation of this joint of the big toe, and fracture of the second tarsal bone, as well as Potts' fracture. Several attempts were made to reduce the dislocation under anesthesia, but all failed. Finally, an open operation was done, and the dislocation was reduced. It was found that it was not the short flexor but the long flexor which had become lodged between the head of the metatarsal and the base of the phalanx, and was preventing reduction. As soon as the long flexor was pulled out with a blunt hook, reduction was accomplished without any difficulty.

Dr. E. W. Andrews reported a parallel case of dislocation of the thumb, in which he made a small incision and by prying with a flat director he managed to slide the phalanx on to the metatarsal, where it stayed. He also referred to a case of tubercular degeneration of the thyroid. The patient had several tubercular glands in the neck, and then developed a small cold abscess in the thyroid. After pulling out shreds of thyroid tissue for several weeks, he finally enucleated the whole gland as a necrotic mass. The patient developed symptoms of myxedema and later died suddenly.

Dr. D. A. K. Steele reported a case of dislocation of the metatarsal-phalangeal joint of the big toe following an elevator accident. Repeated attempts by a local physician to reduce the dislocation, even under anesthesia, had failed. Recognizing the irreducibility of the dislocation, Dr. Steele did an open operation, and found that it was the long flexor that was lying between the bones and prevented reduction. Even strong leverage failed to effect reduction until the tendon of the long flexor was withdrawn, when reduction was effected very easily.

INTESTINAL OBSTRUCTION FROM MECKEL'S DIVERTICULUM.

Dr. William M. Harsha reported this case in a woman, aged 37, and detailed the history of the case and described the operation. He likewise reviewed the literature. He also reported a case of gangrene of the leg, following rheumatic endocarditis. In this case amputation became necessary. The patient was a woman, 52 years of age. His conclusion was that there were vegetations of thrombi about the valves, as a result of the endocarditis which became dislodged and probably occluded the lower end of the popliteal at the bifurcation. He also reported a case of spontaneous fracture of the fibula, followed by amputation.

Dr. A. E. Halstead stated that statistics showed that next to intussusception, obstruction from diverticulum is the most common form of obstruction of the bowel. The statistics of Lichtenstein showed that 39 per cent. of obstructions are caused by intussusception, and 6 per cent by diverticulum. Dr. Harsha's case was interesting, because the constricting band had been present from birth and did not produce obstruction for many years. The immediate cause of obstruction was undoubtedly some acute distention of the bowel above the point of constriction, which happens frequently in these cases, especially when the loop of bowel is suspended by a diverticulum from the umbilicus. He thinks it is a mistake not to remove a diverticulum. There are on record some thirteen or fourteen cases of obstruction occurring from invagination of the diverticulum.

SARCOMA AND MYOMA OF THE STOMACH.

Dr. John L. Yates, of Milwaukee, Wisconsin, reported five cases of sarcoma and myoma of the stomach. Three of the cases, which occurred within nine months in the clinic of Dr. Ochsner, illustrated the early development of a myoma, as well as the two main clinico-pathological groups into which primary gastric sarcoma may be divided, the one clinically indistinguishable from carcinoma, the other relatively benign and at times capable of preoperative recognition.

Dr. A. J. Ochsner said the fact of finding three tumors of the stomach that were not carcinomatous, within so short a time, tended to show that these tumors

are much more common than was formerly supposed, and that tumors which are sarcomatous or myomatous may be diagnosed as carcinomatous. This seems to be important from the fact that the stomach was fairly well protected against the transmission of sarcoma to the surrounding tissues. A sarcoma seems to remain more limited than does carcinoma, so that the end results should be better after gastrectomy in sarcoma than in carcinoma.

Dr. A. E. Halstead cited the case of a young man, seen a few years ago, with a movable tumor of the stomach. He had no stomach symptoms, except epigastric soreness occasionally. He operated on the man and found a pedunculated tumor of the size of a small orange, which resembled a foreign body more than a tumor. The tumor was attached to the smaller curvature. The portion of the stomach giving attachment to the tumor was excised, and the patient made a complete recovery. The patient disappeared, so that it was impossible to learn whether or not a recurrence took place. Microscopic examination showed the tumor to be a round-celled sarcoma.

Dr. D. A. K. Steele had observed a number of cases of sarcoma of the stomach, but they were secondary. All the patients died. The first was a young man, 18 years of age, who received a blow on the right testis, while playing ball. This was followed by inflammation and the development of a sarcoma. The testes and cord were removed thoroughly and carefully, but within a few weeks there was involvement of the mesenteric glands, and in four months the man had a large sarcoma of the stomach, which proved fatal in a few weeks.

Another patient was 20 years of age. He received an injury of the inner condyle of the femur, which was followed in a few weeks by the development of an osteosarcoma. The leg was amputated at the middle of the femur, and the patient made a good recovery, but in four or five months sarcoma developed in the flexor muscles of the forearm following unusually severe exercise. The muscles were removed and the man was well for three or four months, when he developed a sarcoma of the stomach, which caused his death about sixteen months from the time of appearance of the primary tumor of the femur.

Dr. E. W. Andrews was impressed with the remark of Dr. Ochsner relative to the possibility of there being a greater number of sarcomata of the stomach than is supposed. He concurred in this statement and said he thought this might be of clinical importance in changing the attitude of the profession toward gastroenterostomy in cases where radical removal is impossible. He did not agree with Mayo and Billings and others who condemn palliative operations on the stomach. When only one out of many cases is benefited it is worth while having operated. It is possible that only in these cases of carcoma of the stomach life may be much prolonged, and a patient who lives for years after the operation for the removal of a malignant growth of the stomach in all probability had a sarcoma and not a carcinoma.

Dr. Yates, in closing the discussion, directed attention to the statistics of Fenwick, showing that in a series of 500 cases of tumor of the stomach sarcoma was present in 2 to 4 per cent. Of six or eight patients that have been operated on by thorough extirpation, 40 per cent. were alive at intervals of from two to twenty-four months after operation.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held April 3, 1906, with the president, Dr. Otto T. Freer, in the chair. Dr. A. H. Andrews read a paper entitled Transillumination of the Mastoid Cells as an Aid in Diagnosis.

DISCUSSION.

Dr. Norval H. Pierce:—I believe that transillumination in this region, as well as auscultation, which Dr. Andrews has advocated, has been used to a considerable extent in the past. The same factors that cause transillumination to be a method of diagnosis, that is subject to very great variations in its use in the frontal and maxillary sinuses, hold good when we use it in transillumination of the mastoid region. Dr. Andrews has quoted a case, where the anatomical peculiarities ren-

dered the method unsatisfactory. I can imagine, however, in those peculiar cases of acute exacerbations in chronic conditions, or in primary conditions, when there is extensive destruction within the mastoid, accompanied by little temperature, and little or no infiltration of the outside, that this might be of great assistance in leading us to the proper course of treatment. These are the very cases in which we need the greatest help, but it will not differentiate, for instance, a periostitis from disease of the interior of the bone, nor will it differentiate edema of the exterior of the mastoid, following a furunculosis of the external auditory canal. It will not be of any service to us, in my opinion, in any case where there is infiltration along the external auditory canal, either in chronic or in acute cases. I have had no special experience with this method, therefore I am speaking from off-hand judgment, but it may have a place in rendering valuable assistance in those cases where we most need assistance. At the same time, we must always bear in mind that the difference in the formation of the mastoid on either side in a given case may always cast a greater doubt on the results of transillumination than is cast in the case of transillumination of the antrum of Highmore, and even of the frontal sinus. Among these differences may be mentioned the size and shape of the sigmoid sinuses, the difference in arrangement of the pneumatic cells, etc. Transillumination of the frontal sinus is of greater value than transillumination of the maxillary antrum. I should say that mastoid transillumination stands third in importance or reliability, if we put transillumination of the maxillary sinus first, and transillumination of the frontal sinus second.

Dr. George E. Shambaugh:—I think we should all welcome this method, which Dr. Andrews has demonstrated, of assisting us in making a diagnosis of what is taking place inside the mastoid process in those cases where we have difficulty in determining what the condition may be. In ordinary cases, where distinct symptoms appear over the surface of the mastoid, we need not call upon this method, as we have much more definite and accurate means of determining the state of affairs inside the mastoid than this method can afford. This method, which the doctor has presented is, however, especially intended for those cases where the outer shell of the mastoid is dense and hard and prevents symptoms appearing early over the outer surface. It is just these cases where it is most urgent that we determine the condition in the mastoid cells, for the hard outer shell of the mastoid tends to force the pus to rupture internally, with much more serious results than when the rupture is over the outer surface of the mastoid.

I should expect this method to give the most positive results in those cases where the need for calling upon extra assistance in diagnosis is the least, that is, where the pneumatic spaces completely fill the process, allowing pus to get near the surface of the bone. On the other hand, this method would be least likely to give much assistance in just those cases where the need for assistance is the greatest, that is, where either the external part of the process is diploetic and not filled with pneumatic cells, or where, in cases of chronic suppurative otitis media, the larger part of the process has undergone the process of osteosclerosis, with obliteration of the pneumatic spaces. It seems probable that in such cases, where the mastoid is diploetic or sclerosed, the shadow cast would not be as marked as when the process was filled with pus.

An objection which, I should think, would interfere more or less with the efficacy of the test, would be the passage of light through the soft tissue between the speculum and the bony wall, in which case it might appear at the end of the speculum as though it had passed through the mastoid process. We meet with this difficulty in applying transillumination to the frontal sinus and, in order to obviate the difficulty, it is necessary to use a lamp that can be placed well back under the ridge of the orbit. In the case of the mastoid, we have no ridge to get under. Again, I should expect that where we attempted to obviate this difficulty by placing the lamp far back on the process, we would have cases where a deep shadow would form, because of an external position of the lateral sinus. This method, however, is one which I should not be surprised to find that we will all be using some day to assist in doubtful cases, just as in the accessory sinuses of the nose, transillumination is in universal use as an aid in diagnosis. I should

not expect this method to give us as reliable information as when applied to the maxillary sinus, and, perhaps, not as valuable as the transillumination of the frontal sinus. In using it for the mastoid, we have an advantage over especially the frontal sinus, in that the type of mastoid varies less on the two sides than does the frontal sinus.

Dr. Joseph C. Beck:—I have been very much interested in Dr. Andrews' paper with regard to transillumination of the mastoid. I have had experience with it in quite a number of cases, and am somewhat interested in it, but I have found it wanting in most cases. Where I found shadows and had made a positive diagnosis by that method, in opening the mastoid I found that it was quite free from any granulation tissue or necrosis, such as I had expected to find. If there is any method that is going to aid us in the diagnosis of these cases more than transillumination, it will be the use of the *x*-ray in diagnosing doubtful cases. I learned transillumination of the mastoid from the master or originator of the method, Dr. Urbautchitch, at his clinic, and, practically, it is not used there at all, nor is it used in most of the foreign clinics, contrary to what the author of the paper believes to be the proper method as to the diagnostic value of the method. I agree with Dr. Shambaugh, with reference to the adaptation of light to the mastoid process, that it does pass between the membranous canal and the bony wall, or the external wall of the mastoid process, and the light would show through the skin rather than through the bone.

I have had some experience with the use of the *x*-ray, and am working along that line. I believe it is a valuable aid to diagnosis. So far as the maxillary sinus is concerned, I believe the method of Dr. Andrews is excellent. I have recently been using transillumination of the frontal sinus on both sides at the same time, simply because the usual method of transilluminating the frontal sinus is very unsatisfactory, as Dr. Pierce has stated. I use a tube that illuminates both sinuses at the same time, but it does not help me very much in making a diagnosis. The other points made by the author with reference to the diagnosis of mastoid disease are certainly of great value.

Dr Andrews (closing the discussion):—As far as the method of examination being new is concerned, I have made no claim to priority, although I must confess that I know of no one who has preceded me in the use of this method. There is a difference between originality and priority. A man can do original work, without being the first to have followed out that line of investigation. With regard to furuncles in the auditory canal, if the canal is so swollen that the speculum can not be introduced, we could not expect to get much or any result, but if the canal is sufficiently open, and if the furuncle has caused edema of the canal, it does not perceptibly change the condition of light transmission. I have not thought that this method of examination is infallible. I can not claim for a moment that when the light fails to pass through the mastoid and to be seen in the auditory canal, that this is, of itself, pathognomonic of mastoid disease, and I think that this may be said of shadows in the neighborhood of the antrum of Highmore, and also of shadows in the neighborhood of the frontal sinus. While they point toward the existence of disease, they are not pathognomonic.

With regard to the light passing around and through the skin, I have not observed that light shows very much of a tendency to go around corners, especially when there is nothing to reflect the light. If those who have used the light and have failed to get satisfactory results, will use it on the cadaver, and make control tests, they will so improve their technique that they will be able to get more or less satisfactory results from the use of it on the living mastoid.

CASE OF DOUBLE FRONTAL SINUS DISEASE.

LOUIS OSTROM, M.D.

ROCK ISLAND.

The photographs I pass around, show some of the things we do outside of Chicago. We do not have the opportunity of exchanging ideas that you have here. We sometimes, however, see some very interesting cases. This patient, Mr. F. C., aged 24, was incapacitated from work for six years, on account of so-called frontal

neuralgia. Six years ago he had la grippe. Since that time, he has had constant frontal headaches. For the first two years, there was more or less discharge of pus, but in the last four years there had been no pus, but, occasionally, thick lumps of mucus. The patient went the rounds of several physicians, until he visited Dr. Bernhardi, of my city, who kindly referred him to me. His nose was examined and found to be normal. The middle turbinates were not swollen, and the mucous membrane was healthy looking. Probing the frontal duct brought no pus. Tenderness over the frontal sinus was so marked that I felt warranted in making a diagnosis of double frontal sinusitis. Transillumination, in this and all other frontal sinus cases, has not been satisfactory in my hands, because this and all other acute or chronic sinus cases showed a distinct light reflex, while many cases, having no frontal sinus disease, have not transmitted light. I have used Freers' modification of Jackson's lamp. The man was in such a condition that he could not work, nor eat, so that he was willing to submit to almost anything. I removed the anterior ends of the middle turbinates about three weeks or so before I operated on the frontal sinus, which gave him partial relief. I started out with the intention of doing a double Killian, but his nose was too narrow, so I decided on Coakley's open method. My first incision extended from the outer end of the right eyebrow, in a curved direction, one-half centimeter above the supraorbital ridge, to the median naso-frontal suture. The periosteum was elevated, and the sinus entered with a gouge, removing considerable bone without puncturing the mucous membrane. When the mucous membrane was incised, about half a gram of clear watery fluid flowed out first, then masses of polypi, granulation tissue, and necrotic bone were met, completely filling the entire sinus. This was scooped out with a curette, and the septum, which was one and one-fourth inch to right of median line, and partially necrotic, was broken down, and a like condition was found in the left sinus. A similar incision was then made, from the outer end of the left eyebrow, extending to one-fourth inch from median end of right incision, leaving a bridge of skin and periosteum over the glabella. The anterior walls of both sinuses were removed, leaving both supraorbital ridges; the mucous membrane of the sinuses was carefully removed with sharp curettes, the naso-frontal duct and anterior ethmoidal cells destroyed with the curette, carefully avoiding the cribriform region. On completion, the actual size of the sinus, measured from the ledge of bone over glabella was, height, 1½ inch, depth 1 inch, while this was much enlarged below by the large ethmoidal cells, extending up to the orbital margin. The left incision was completely closed by sutures, and the right closed except for the median inch, through which both sinuses have been packed. The patient has made an uneventful recovery, with no depression or deformity. A slight pitting at point of dressing can be remedied with parafin.

In regard to dressing this and other similar cases, I will say that, for the first two or three weeks, the dressing has been attended with so much pain that it was necessary to give the patients a fourth of a grain of morphia every time, as they nearly fainted or collapsed from shock every time I attempted to dress them. The interesting features of this case are: 1. Obscure symptoms, frontal pain and tenderness being the only guide. 2. Nasal cavities normal in appearance. 3. No discharge of pus from the nose for the last four years. 4. The large size of the sinuses. 5. A bridge of skin and periosteum left over glabella, preventing depression. 6. Transillumination was negative. 7. Both sinuses were dressed through one external opening.

Dr. George E. Shambaugh presented a

CASE OF MAXILLARY OR DENTAL CYST.

"HYDROPS ANTRI HIGHMORI."

The case I have to present is that of a woman, 25 years of age. For the past year, she has noticed that a swelling had been gradually developing over the anterior or facial wall of the antrum on the right side. She has experienced no pain, except the soreness produced by examination. The swelling is now about the

size of a hickory nut, its surface is rounded and smooth, the mucous membrane over it is unaltered. The swelling extends from the canine tooth well back to the second molar. The patient claims that, on some days, it appears more swollen than on others. On examining the swelling with the finger, it is found to have a bony wall, but, on pressure, it can be readily indented, producing the sensation of cracking, not unlike that produced when indenting a piece of parchment. There have been no nasal symptoms, and nothing abnormal was found on examining the nose. Her teeth are very bad, and several on the affected side have been crowned. On transillumination, both antra appear equally clear, and it is evident that the antrum is not the seat of an empyema. On account of the nervous condition of the patient, no puncture has been made, either of the nasal or anterior wall of the antrum.

Cases presenting the clinical symptoms, which are found in this patient, were formerly described in the literature under the hypothetical term of "hydrops antri." As the characteristic symptoms of this condition are given an ectasia of the facial wall of the antrum, which, on pressure, produced the parchment-like crackling. The condition was supposed to arise from the blocking up of the normal opening of the antrum into the nose by an inflammatory swelling, such as a polyp. As a matter of fact, no such condition as the above has ever been found. When it became evident that the explanation given above, of the etiology of the symptoms presented by these cases, had to be given up, the following explanation was brought forward. It was known that in disease of the lining membrane of the antrum, the formation of cysts was not uncommon, and it was claimed that the enlarging of such a cyst, until it completely filled the antrum, finally resulted in producing an ectasia of the anterior or facial wall of this sinus. This explanation seemed all the more plausible, because of the occasional symptom, in these cases, of a discharge of a seromucous exudate into the nose, which was explained by the rupture of such a cyst, and its emptying into the antrum, and the final escape of the fluid through the ostium maxillary into the nose. When these cases were operated on, a large cavity, presumably the antrum, was found filled with a mucus, sero-mucus, or even a purulent discharge, which represented the contents of the supposed cyst. Now, while cystic degeneration of the mucous lining of the antrum is by no means an uncommon occurrence, this condition has never been known to produce the symptoms given as characteristic for cases of "hydrops antri," namely, an ectasia of the facial wall of the antrum.

That an ectasia of this wall of the antrum could not be produced, as was formerly supposed, by accumulation of secretion in the cavity of the antrum, whether in the nature of pus or mucus, or from an enlarged cyst, is very evident, when an examination of the several walls of the antrum is made. Of the walls of the antrum of Highmore, the facial is the strongest, and, therefore, the one least likely to show ectasia from accumulations in the antrum. The nasal wall, on the other hand, is the thinnest wall, and, for a considerable area in the middle meatus, the bony wall is wanting, and the antrum is separated from the nasal chamber only by the mucous membranes of the antrum and of the nose. These spaces have been named by Zuckerhandl, the nasal fontanelles. It is here that we frequently find bulging, when the antrum is filled with pus. Yet in these cases of "hydrops antri," bulging has never been known to take place in the nasal wall, while the firmest wall of the antrum, namely, the facial, is the one that shows the ectasia. It was through the knowledge of these anatomical facts and the absolute failure to find any evidence of the existence, either of the condition described as "hydrops antri," or of ectasia of the facial wall, resulting from an enlarged mucous cyst in the cavity of the antrum, that the correct explanation of the cause of the symptoms presented by these cases was finally reached.

Cases presenting an ectasia of the facial wall of the antrum, which, upon pressure, elicits the characteristic crackling due to indentation, are cases of enlarged dental cysts. Small cysts of this kind are by no means uncommon. They occur at the apex of the dental root, and are lined with epithelium, derived from that covering the root of the tooth. These dental cysts are probably always the result of irritation, either from a retained tooth, or from an inflamed root. A

cystic cavity is formed, for which room is made by an absorption of the surrounding structures. These dental cysts sometimes produce a bulging in the roof of the mouth, sometimes they extend upward into the cavity of the antrum, which they may, in a large measure, fill; at other times, the dental cyst may produce an ectasia of the facial wall of the antrum, as in the case reported here. It was in the cases presenting this latter condition, an ectasia of the facial wall of the antrum, which, upon pressure, elicited the characteristic crackling, that the term "hydrops antri" was formerly used. The correct term for such cases is maxillary or dental cyst.

DISCUSSION.

Dr. William E. Casselberry:—A few years ago two cases passed under my observation, which, together with a review of the literature, I published under the name of Serous Disease of the Maxillary Antrum. The first case was acute, and, on making an exploratory puncture through the nasal wall, I drew out two syringefuls of a clear, straw-colored serous fluid. I repeated this operation with the same result on the following day, and again on the third day, when pus appeared in place of the serous fluid. The other case was chronic, one of nasal polypi, in which transillumination did not show a distinct shadow, which test being indecisive, repeated puncture tests were made, first for diagnosis and later, at weekly intervals, to afford samples of the clear serum obtained for the purpose of chemical and bacteriologic examination. The serum was taken out through the antronasal wall with a Schmidt syringe, the punctures being made in various locations, in order to embrace the entire cavity or antrum in the tests, as far anteriorly and posteriorly as possible, and up and down, but always the same kind of fluid, namely, a perfectly clear, opalesent, slightly-yellowish material was withdrawn. The disease was bilateral, hence, if cystic, the cysts, one on each side, must have totally filled the antrum. In looking up the subject, I found there were three conditions which had been confused, one for another. The first is the dentigerous cyst, which originates in the anterior wall of the antrum and which has been so well described by the essayist, the distinction which he draws as regards the bulging of the anterior antral wall being a useful one. In neither of the two cases which I reported under the name of Serous Diseases of the Antrum, was there any bulging or malformation of the anterior wall of the antrum. The second condition is that of a cyst within the antrum, due to degeneration of a polypus or closure of a glandular duct (not a dental cyst) and, in the two cases which I reported as serous disease, and in others described in the literature, it is difficult to decide whether the fluid may not have been cystic, rather than a serous exudate free in the antrum, with possibly a closed antrum orifice. I believe it to have been a free mucoserous exudate in my cases. Killian and Hajek, while regarding cystic formations as more numerous, accept as possible the free accumulation within the antrum of mucoserous and serous fluid. Other modern authors cite cases in which there was no cyst-wall and no "rest" or single angle unfilled, and to these cases the name of "serous disease" or hydrops antri inflammatorius is given.

Doubtless, most of the cases of "hydrops antri," from the older literature, were dentigerous cysts, but the term is not now thus limited, being used to embrace also non-dentigerous cysts within the antrum and free "serous disease" of the antrum, the latter being "hydrops antri inflammatorius."

Dr. Joseph C. Beck:—I would like to ask Dr. Shambaugh whether he punctured the cyst or not?

Dr. Shambaugh:—I did not.

Dr. Beck:—I had a case of dentigerous cyst two years ago. The patient presented very much the same symptoms as those reported by Dr. Shambaugh. The patient declared that he had a capped tooth, which was exceedingly sensitive. He was a man, 35 years of age. I had the capped tooth extracted, and found, beyond it, a large cyst filled with straw-colored fluid. I dissected the cyst wall thoroughly and packed it, believing it would heal by granulation, as we know that these cavities do not collapse very easily. I did not succeed in filling it out, and I secondarily removed a portion of the cyst wall, which was not very hard in

consistency. It was not compressible, so that I could press it in to eliminate the cavity. This patient developed a sarcoma on top of this condition, and succumbed to that disease.

Cases of large dentigerous cysts are on record. For instance, Killian found one leading clear up to the nasal cavity, which became malignant. A point that interested me particularly in Dr. Casselberry's discussion was with reference to finding fluid in the antrum postmortem. We are all doubtless familiar with the results of Wingrave's investigations of the postmortem examinations of sinuses, finding them filled with fluid, in most instances. Disease of the antrum does not always exist when there is fluid found after death.

Dr. Norval H. Pierce:—There are two attractive points that have been brought out by the essayist and by the discussion. First, we can not depend on the sensation of crepitus in these cases, in differentiating dentigerous cysts from sarcoma. We may get the same sensation precisely from a dentigerous cyst that we get in a sarcoma. I believe it is the consensus of opinion of late investigators and writers that no inflammatory condition of the antrum of Highmore causes a bulging. Whenever we get this condition, we have to do with a cyst, a dentigerous cyst being in all probability the most frequent. This is due to a physical fact, namely, that in order to push downward or outward the wall of the antrum of Highmore, the cyst or the condition causing the bulging, the displacement, must have a point of purchase, which dentigerous cysts have, as they form primarily in the bone. In inflammatory conditions we have bulging of the fontanelle of the middle meatus, as it has been termed, and I have frequently seen bulging in empyema, but, aside from this valuable differential point, we do not get displacement of any other wall in inflammatory conditions, but we do get it in the cystic condition, and in all cases in which there is tumor formation in the wall.

Dr. Shambaugh (closing the discussion):—Where we have a case presenting the symptoms which this one shows, of a bulging of the facial wall of the antrum, the question whether the trouble is due to antrum disease is out of consideration. This question has long been cleared up and we know, at once, that we have to do with a dentigerous cyst. The term hydrops antri, as formerly used in the literature, applied to cases of supposed antrum disease where a bulging of the anterior wall was present and a characteristic of this disease was the crepitus produced by pressure. The term originated under a mistaken conception of the real condition. I see no reason why the term hydrops antri should not be still used, not applying to cases where this ectasia exists, but where the antrum is the seat of disease, such as an accumulation of secretion, as was found in one of the cases, at least, of the two described by Dr. Casselberry several years ago. I am not aware, however, that this use of the term hydrops antri has been made.

Dental cysts do not always produce a bulging of the facial wall of the antrum. They sometimes produce a bulging into the roof of the mouth and sometimes the dental cyst will be produced entirely at the expense of an antrum, sometimes even causing an almost complete obliteration of this sinus. In such a case, where the cyst has grown into the antrum without producing an ectasia of the facial wall or the roof of the mouth, it will be found quite difficult to make a positive diagnosis of the condition. Should one suspect, from certain indefinite symptoms, that the antrum was the seat of disease and a puncture of the antrum wall is made with extraction of fluid, it would be found quite difficult to determine which of the conditions were present, a dental cyst, a cystic degeneration of the mucous lining of the antrum or fluid filling the cavity of the antrum. It may be that a study of the fluid, which one withdraws in making the puncture, may assist in determining its origin.

Dr. William E. Casselberry:—The fluid from my cases of serous disease, which I caused to be carefully examined by competent microscopists at the time, was practically sterile. It had a little fibrin, serum albumin, a few epithelial and lymph cells, but did not contain cholesterin. It has been stated that in the contents of cysts cholesterin is found, this being regarded as one distinction.

Dr. Charles M. Robertson read a paper on

MEMBRANOUS RHINITIS (NON-DIPHTHERITIC).

CHARLES M. ROBERTSON, M.D.
CHICAGO.

Fibrinous rhinitis is a disease which, although not so rare in its appearance as to warrant special attention, is not so common in the strict sense of being one of the diseases frequently met in practice, save that form which follows some mechanical injury to the nasal mucosa. After operative procedure, especially with the galvano-cautery, it is not an uncommon occurrence. The presence of some irritation from inhalation of gases or from a foreign body may often cause it.

It is not my pleasure to discuss this phase of the subject to-night, nor yet that form which is found to be diphtheritic. Eliminating these several forms of membranous rhinitis, then, the disease might be termed a rare condition. I can find but few records in which diphtheria bacilli are not found, and for this reason I take the liberty of presenting the histories of two cases, which represent a disease rather than a condition resulting from some traumatism, or due to some cause other than invasion by the Klebs-Loeffler bacillus.

Case 1.—On February 16, 1902, I was called to see H. B., in consultation with his family physician, on account of a discharging ear. The patient, a boy, five and a half years old, had always been a delicate child. His mother was delicate and neurotic and had been so all her life. The father was strong and well nourished, but nervous. The child had had most of children's diseases, and was decidedly undersized and anemic. About ten days previous to my visit, he had been taken with a chill, following which, what was supposed to be an ordinary coryza developed. The temperature had ranged from 99° to 102° F. The nostrils were both occluded most of the time, and the child frequently blew sero-mucus from the right side. The parents had difficulty in having him blow his nose, as he exhibited a tendency to swallow the discharge rather than use the handkerchief. The edges of the nostrils were red and moist, but not much excoriated. General medication and an alboline spray were being used when I first saw the patient. The urine seemed normal in amount, but was not examined. Bowels were normal, as was the skin. Upon examination, I found the right nostril occluded, and after contracting the turbinals with cocain and adrenalin, I found a membranous exudate high up and far back on the septum, grayish-white in color. Upon removal of the false membrane, the nose bled for quite a time. The affected spot being so far back, it was impossible to see it on account of the bleeding and the impatience of the child. The lower turbinate, before applying cocain, was so swollen as to press against the septum. There was a sero-mucus discharge which was tinged with blood. The left nostril was markedly less swollen than the right, and I could find no exudate or bleeding spot in it. The submaxillary glands were swollen and somewhat tender. The faucial tonsils were free from membrane, but red. There was a bloody discharge staining the post-pharyngeal wall, running down in streaks. The pharynx was red and inflamed. The right ear was discharging a quantity of mucopus, which had appeared a few days prior to my visit, after a few hours of severe headache. The membrana tympani was very red and presented a perforation below and in front of the handle of the malleus. Cultures from the nose and naso-pharynx showed the presence of staphylococcus and streptococcus, while from the ear discharge there was only staphylococcus. No diphtheria bacilli were found. Three days later the left ear began to pain him, and, on inspection, was found red, with a slightly bulging membrane. This was freely incised, and a few drops of bloody serum escaped, which showed only staphylococcus. I noticed at this time a red spot on the right cheek, the size of a silver dime, about one-half of an inch in front of the ear. The pina of the right ear was swollen and red. The temperature had risen about one degree a day since I first saw the case, and was of interrupted type, such as is found in erysipelas. On this day it was 104° at 4 p. m. After cutting the membrane of the left ear, the temperature fell to 102° in a few hours. The child was very restless, and the pulse ranged from 116 to 130, but

was of fair volume. The following day the spot on the cheek had the typical appearance of erysipelas, and spread rapidly over the right side of the head and face to the median line and down to the upper eyelid on the left side.

Cultures from the blebs on the face showed the presence of streptococcus. The child at this time showed intestinal involvement, and soon had bloody stools. In a short time, the urine became cloudy, with some albumin. The full urinary findings I can not report, as they were not furnished by the attending physician. The nose bled violently on the second day of my visit, which was caused by the nurse attempting to clean the nostril. It was necessary to pack both nostrils and the postnasal space for twenty-four hours. Subsequent hemorrhages occurred from the right nostril, which were controlled with adrenalin. The right ear ceased discharging on the fifth or sixth day of my visits by obstruction of the perforation. Drainage was established again, by cutting the membrane in the postinferior quadrant. The ears ceased discharging on the twenty-sixth day for the right, and on the eleventh for the left. The rhinitis resolved at the end of three weeks from the time I first saw the case. The erysipelas ran a rapid course, and the temperature and pulse were typical of this form of sepsis. The child made a good recovery in about another month, save for a catarrhal discharge which persisted until a trip into the country made him stronger, at which time the discharge from the nose disappeared.

Case 2.—Referred to me at my clinic as a case of fibrinous rhinitis by his family physician, Dr. J. M. Washburn, who has furnished me with the following history:

Willie C., aged 8, white. Had whooping cough when a baby. Scarlet fever four years ago; measles two years ago; tonsillitis one year ago. Usually sleeps well, appetite good, bowels regular. Third grade in school. Not exposed to diphtheria as far as known. Friday, December 16, 1905, nose felt sore and stuffed up. Slight headache; felt feverish and depressed; no chill; nose bled a little when blowing it. Sunday night vomited once. Child up and around, outdoors. Brought to office Monday, the 19th, by mother, on account of membrane in the nose. Well developed boy; looks ill; temperature 100° F.; pulse soft, 116 (130 when excited), not irregular, not intermittent. Heart, lungs, abdomen, skin, negative. Left nostril occluded, with fibrinous gray-white membrane, bleeding when removed. Small patch of membrane of same character on the left tonsil. Pharynx generally congested. Submaxillary glands enlarged. Cover-glasses prepared from membrane, stained with Loeffler's alkaline methylene blue, showed many cocci and other bacteria, but no Klebs-Loeffler bacilli. Cultures were made on the blood serum furnished by the Health Department from the membrane of both nose and throat, and sent to the Health Department Laboratory. Urine clear; acid, 1015; no albumin; no sugar; no casts, or other abnormal elements.

Treatment.—Cleaned out anterior nares as far as possible; swabbed with 10 per cent. argyrol; ordered douche of glycothymoline every three hours. Internally, calomel, aspirin and simple tonic. Light diet. Isolation ordered until report from Health Department was received. On the 19th a report was procured from Health Department, which stated: "No diphtheria; staphylococci; influenza." Nostril was cleaner anteriorly; patch on tonsil not enlarged; patient feels better; still bleeds when he blows his nose. Sprayed with 1-5,000 adrenalin solution, and referred to Dr. Robertson. Upon examination, both nostrils were found occluded, and presented a large amount of grayish-white membrane bathed in a sero-mucous discharge, which was profuse. The inferior turbinate was, as far as could be ascertained, swollen and flabby. The false membrane was adherent and the mucous membrane bled on the slightest manipulation with a cotton pledget. Pieces of the membrane were removed for culture purposes and showed the presence of staphylococci and influenza bacilli. After removing pieces of the false membrane, the nose bled profusely, but stopped after a little of its own accord. The surface of the mucous membrane was rough and red, and the turbinate greatly swollen. After the exudate was removed, new exudate quickly formed, and had a striking appearance of the exudate found in diphtheria. Owing to the fact

that the case was seen in the clinic, it was observed only on alternate days. On the fourth visit, the right lower turbinate was not so much swollen, and the exudate was removed in one piece. The piece removed was the exact size of the surface of the turbinate for its entire extent, and about 3 mm. in thickness. On the next visit, the membrane in the left nostril was removed. At this time the right nostril was discharging little, but the mucous membrane was still very red and swollen. The left nostril followed the course of the right, and recovery was rapid. The exudate on the tonsil disappeared about the same time as that in the left nostril. The glands then began to diminish in size and the health of the child was soon restored. The disease in this case lasted about two weeks. In both of these cases diphtheria bacilli were absent.

Most authors who have observed this disease are inclined to class it as a nasal diphtheria, but these two cases, although resembling it both objectively and subjectively, were non-diphtheritic. I report them on this account, to show that we do have non-diphtheritic membranous rhinitis. The disease is a self-limiting one, running its course in from two to six weeks. The membrane, if left alone, will usually peel about the ninth to fourteenth day. It resembles diphtheria very closely, but can be differentiated easily by culture tests. This, too, will tell whether quarantine is required. In case 2, there was a tendency to develop atrophy of the turbinals, which will be observed as to ultimate result. The three germs in these cases were the streptococcus, staphylococcus and the influenza bacillus. In case 1, the ears did not show the full infection that was present in the nose, and I could not account for the absence of streptococcus in the ear discharge. The ears were a simple infection from the naso-pharynx, and ran the ordinary simple infection course.

DISCUSSION.

Dr. Louis Ostrom, Rock Island:—I saw a case similar to those that have been reported, three weeks ago. The patient was a man, 50 or 60 years of age, the proprietor of a piano and organ factory. He presented himself three weeks ago with a distinct membrane extending over the uvula towards the margin of the soft palate, the pharynx, postnasal space, and about halfway forward on the turbinates. Smears from it showed pure streptococcus; no diphtheria. The health report showed no diphtheria. The condition lasted about a week. He had a very high temperature, suffered much pain, and had acute tubal catarrhal otitis media, with severe earache, which did not pass into suppuration.

Dr. William E. Casselberry:—We know that pseudo-membranous exudates in the pharynx are usually diphtheritic, but they are not invariably diphtheritic, and there is no reason why the same dictum should not pertain to the nose. No doubt the usual type of membranous rhinitis is diphtheritic, in a sense, but cultural tests and the clinical course are apt to differ from ordinary diphtheria. It does not produce the same degree of systemic depression, and it is not as virulent as regards extension to other parts as is a case of regular diphtheria. Nevertheless, these variations are differences of degree rather than of kind. The fact remains that the majority of cases of membranous rhinitis are certainly diphtheritic in the sense that they are mild forms of diphtheria, and capable of transmitting diphtheria. But as stated by the essayist, we do have exceptional cases which are not diphtheritic. I recall having published three cases of membranous rhinitis, one of which was non-diphtheritic. It was in the person of a physician infected after attending a scarlet fever case. He had also a pseudo-membranous pharyngitis, but the membrane was of a thin inflammatory character rather than typical of diphtheria. The membrane in the nose looked as much like a diphtheritic membranous rhinitis as it possibly could, but culture tests excluded the Klebs-Loeffler bacillus. The case presented symptoms of erysipelas later on, which led to my statement at the time, that the micro-organism of erysipelas was likely causative of the membranous rhinitis.

The other two cases were much like this one, minus the pharyngeal implication and the erysipelatous hue, yet they were diphtheritic as proven by culture. One was a trained nurse, who was infected during attendance on a diphtheria case, the

other a physician, who was practicing intubation often for laryngeal diphtheria, yet in both the nasal disease ran its usual mild course.

Dr. Robertson (closing the discussion):—There was one point that I did not bring out in my paper that I would like to speak of now. In cases in which the exudate develops the staphylococcus, it is altogether probable that we would not get the germ that produces the exudate, but rather the germ that is present after the exudate is formed. The staphylococcus, although nearly always present in these exudative forms of the disease, both in the throat, ear and nose, is secondary. The primary bacillus or coccus has done its work, whether it be the pneumococcus, influenza bacillus, streptococcus, or colon bacillus, and then has been reabsorbed. The bacillus does its work and is reabsorbed by the system, producing the systemic poisoning that we get. Then the staphylococcus comes on as a secondary infection. Dr. Fenton B. Turck is making some experiments now on the mucous membranes of dogs, that is, the mucous membrane of the colon and intestine, and he finds the staphylococcus predominates after the membrane is formed. The germ which causes the primary infection disappears, producing the systemic poisoning.

Dr. Charles J. Whalen read a paper entitled

A CASE OF SO-CALLED LARYNGEAL VERTIGO (BRONCHIAL SYNCOPE).

CHARLES J. WHALEN, M.D.
CHICAGO.

Mr. D., a salesman, aged 60, always enjoyed good health, except that he had had a bronchitis for the past five winters. In April, 1905, he contracted a cold, followed by slight hoarseness and a cough. Shortly afterward, the children of the household also began to cough in paroxysms of increasing severity like the grandfather. In the case of the children, the diagnosis was cleared when a few weeks later the whooping stage of pertussis came on. With the grandfather, the cough continued to grow more severe, coming on in paroxysms, but without the characteristic whoop, as in the case of the children. Examination of the throat showed 10 per cent. congestion and swelling of the vocal cords, a mild pharyngitis, but no physical signs over the chest, except a few dry and fine moist râles. The kidneys, heart and other organs were normal. The laryngitis and pharyngitis yielded readily to treatment by mild astringent sprays, so that in the course of two weeks all evidence of local inflammation had disappeared. Four weeks after the onset of the trouble, during a paroxysm of coughing, the patient lost consciousness for a couple of minutes. From that time on, he had several attacks daily, in which there was complete loss of consciousness. During sleep also, the patient would start up suddenly at the beginning of a paroxysm of coughing and fall over unconscious. This state of affairs continued during May, June and July. In the months of August, September and October, the same condition existed, but occurred less frequently. With the approach of winter, the cough became worse, owing to his taking a fresh cold, and, with the aggravation of the bronchial trouble, the paroxysms became as severe as before, and, with the return of the paroxysmal cough, the spells of unconsciousness became more frequent. The attacks would average several a day, and altogether the patient has had fully 150. He has been more or less continuously under treatment since the onset of the disease. He has taken all the usual internal remedies and inhalations given for cough with no material benefit until about six weeks ago, when cod liver oil was begun. Shortly afterwards the paroxysms began to lessen in severity and at the present time he is continuing to improve.

Ever since 1876, when Charcot[1] first called a certain symptom complex laryngeal vertigo, and described three cases, the literature of this affection has been accumulating, with occasional protests against the propriety of the name. As the first description, his contribution will remain a classic, no matter what the final consensus of opinion may be as to the accuracy of his observations. It may be as well to introduce the subject with Charcot's description. "The patient feels

1. Gaz. Med., 1876.

a tickling in the lower part of the larynx, a sort of heat or burning, then a little dry cough occurs, followed by a kind of attack, during which the patient collapses, loses consciousness. He is purple, turgid, and presents convulsive attacks of one or two limbs, on one or both sides. The attack is short, and the patient can resume his conversation. In some cases, he has lost remembrance of what occurred during his fall. At times, the tickling is very slight and causes simply a dizzy state without proceeding to a fall. At other times, it is only a breathlessness. These attacks may be repeated fifteen or twenty times a day." Charcot concedes that an irritation of the laryngeal nerves causes the vertigo, just as irritation of the auditory nerves causes Meniere's disease. "Finally, this crisis has the appearance of an epileptiform attack, preceded by a spasm of the glottis of variable intensity."

In 1884, P. McBride[2] reviewed the literature, which at that time included articles by Gasquet, Krishaber, Gray, and Lefferts, and describes a case in which the patient felt as if his throat were squeezed together. He had no burning or tickling, but said all the breathing machinery seemed to stop. McBride experimented with forced expiratory efforts with the glottis closed and noted the nearly obliterated pulse tracings with the sphygmograph, and the tendency to syncope at the same time. From this, he argued that the increased pressure in the lungs tends to prevent the passage of the blood through the lungs, lessening the blood in the left side of the heart. Pressure on the large veins must also hinder the return of the blood. Thus, the face will be turgid or pale, according as spasm of the glottis lasts a longer or shorter time. Direct pressure on the heart also may help to paralyze its action. He quoted Weber,[3] who, unknown to him, had performed a similar experiment in his own person, producing actual syncope with convulsive twitching of the face.

Lennox Browne[4] was the first to describe laryngeal vertigo in a systematic treatise. He used as synonymous terms also laryngeal epilepsy and complete glottio-spasm in adults. Browne agreed that McBride's theory as to the cause of this condition would be generally accepted. He made the further observation that vascular disturbance affects the cerebral circulation, resulting sometimes in epileptiform manifestations, sometimes in simple syncope. As his own three cases presented marked varix of the base of the tongue and upper part of the larynx, he thought that some form of varix would usually be found if proper examination is made.

In 1887, Fred. I. Knight[5] added two cases from his practice and reviewed the history of fourteen cases from the literature. He used the term laryngeal vertigo, though believing it entirely erroneous, because the other names proposed unwarrantably assume the nature of the disease. He thought there was no proper evidence of vertigo, but that it was simply giddiness. He believed that sufficient disturbance of the cerebral circulation can be produced by the forced expiration of cough, or by rapid respiration, to cause dizziness or even momentary loss of consciousness without spasm of the larynx. He suggested that the attacks were due to idiosyncrasy or unusual liability to loss of consciousness. W. C. Phillips'[6] patient "felt as if in Heaven" during the few seconds of unconsciousness. Phillips attributes the pleasurable sensation to asphyxia and offers the term laryngeal syncope as the best description. D. B. Delavan[6] favored the name laryngeal crisis as best fitting his two cases. Adler's[7] patient had no giddiness nor premonition of any kind before falling, nor any tickling or burning in the larynx before the cough. The patient said he choked and wished to cough, but could not get it out. Examination showed an elongated uvula, which probably caused spasm of the glottis as he held his head very low when coughing.

J. E. Newcomb's[8] patient had a spasmodic cough accompanied by clonic spasm of all the muscles, so severe on one occasion as to throw him out of bed. While

2. Edinburgh Med. Jour., March, 1884.
3. Muller's Arch., 1851.
4. L. Browne: Dis. of Throat, 2d ed., 1887.
5. Trans. Am. Laryn. Assoc., 1887.
6. Med. Record, March 12, 1892.
7. N. Y. Med. Jour., Jan. 30, 1892.
8. N. Y. Med. Jour., Sept. 10, 1892.

accepting McBride's theory as more applicable than epilepsy, Newcomb said: "The missing link in our logical chain is the inability to explain why the severity of the paroxysms does not vary directly with the gravity of the local condition. Nor do we know why some patients are thus affected, while the vast majority escape."

A. C. Getchell[9] adds two cases and reviewed literature of seventy-seven cases. He considers none of the previous theories satisfactory. Vertigo is mentioned as a symptom in only seven out of seventy-seven cases, and it does not persist as in Meniere's disease. Vertigo does not proceed from laryngeal affections and manipulations. The age of patients is against the theory of epilepsy. And there are no convulsions. The fall occurs too early in the attack of cough generally to allow severe disturbance of circulation to be the cause.

Getchell concludes that the patients have unstable equilibrium of the central nervous system, with some abnormal condition of the air passages, liable to cause laryngeal irritation with cough and glottic spasm. The closing of the glottis acts upon the inhibitory center and causes syncope. Severe paroxysms of cough may also cause syncope, but will not unless there is disorder of the central nervous system.

J. Middlemass Hunt[10] added two cases, and considered the name laryngeal vertigo unfortunate, as it is not vertigo, but loss of consciousness which is the most striking feature of these cases, whereas loss of consciousness is extremely rare in ordinary vertigo. Hunt classifies the cases as follows: 1. Cases following violent paroxysmal cough with more or less complete glottic spasm and great cerebral congestion such as is sometimes observed in pertussis. 2. Cases of true epilepsy. 3. Cases of laryngeal vertigo proper, better named "ictus laryngis," in which laryngeal irritation with little or no congestion and no glottic spasm, is followed at once by giddiness and loss of consciousness, complete recovery following in a few seconds.

The age of 77 patients subject to laryngeal vertigo, as reported by Getchell, ran from 17 to 72 years, over two-thirds being between 30 and 60. As to sex, all were males except four. As to social condition, nearly all were well-to-do, and the majority led sedentary lives, though one was a sailor. A neurotic temperament has been noted in several, and addiction to alcoholic stimulation, rheumatism and gout has each been observed in a few. In the absence of any generally accepted pathological basis for laryngeal vertigo, we will summarize the varied complications or associated conditions observed. Thus, it occurs most often during the course of chronic bronchitis, pharyngitis, subacute laryngitis, catarrhal pneumonia, asthma and other conditions giving rise to a cough. Exciting causes observed include violent emotion, such as grief and fear, a day of worry and fatigue, taking a pinch of snuff, inhaling tobacco smoke, swallowing a bone. Objective signs have not been fully recorded, but include the usual physical signs of the accompanying conditions. Hyperemia of the pharynx and larynx and elongated uvula have been noted in a number of cases, varix at the base of the tongue in three, and a polypus in the larynx in one.

Symptoms.—The Charcot description of the symptoms remains substantially in accordance with the accumulated experience of the profession. A few cases have been noted where no tickling, burning or other sensation in the larynx preceded the attack. In many the cough has been harsh and paroxysmal, with the expulsion of tenacious mucus, instead of a "little dry cough." The face may not be congested, but even pale as noted by McBride. Charcot seems to have been unduly impressed by the resemblance of an attack to epilepsy, owing to the rigid and spasmodic state of the arm of his second patient. Convulsive movements of the muscles have been noted in only about 10 per cent. of the cases, and biting the tongue only once (Adler[f]). Stridor, like that of pertussis, was noted in two cases (Browne[4]). As to frequency of attacks, Browne records one case that had attacks at intervals of several years. Vertigo was noted in only 10 per cent. of the cases, while loss of consciousness of variable length, but usually

9. Boston Med. and Surg. Jour., Nov. 11, 1896.
10. Liverpool Med.-Chir. Jour., 1898, vol. xviii, p. 310.

momentary, remains the essential symptom. Inasmuch as bronchitis' is by far the most common associated condition, and some cases present no abnormal condition of the larynx upon careful examination, I would suggest the term bronchial syncope to designate this symptom complex.

Prognosis.—The prognosis is favorable, only one death has been reported (Schadewaldt[39]), though there is a possibility that some deaths due to this condition have been recorded under "heart failure" or other names.

Treatment.—Little need be said as to treatment. Naturally, the question of treatment resolves itself into a consideration of the associated local and general conditions. A careful physical examination of the nose, throat and chest is essential. The relief of inflammatory conditions in the respiratory tract has frequently been followed by prompt cessation of the attacks of syncope.

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DISCUSSION.

Dr. William E. Casselberry:—One case I recall at this time, which, however, would better be known as laryngeal crisis, inasmuch as that was the name I gave it at the time. It did not correspond to the typical Charcot description of laryngeal vertigo, since the man did not actually lose consciousness, and did not suffer actual convulsive movements. He would be taken especially at meal time, sometimes when he had not yet commenced to eat, with a slight cough, a strangling sensation, a sense of tickling in the larynx, and then constriction, as if his wind was cut off. He would either fall off the chair or would have to be helped from the table, but I could not get from him the fact that he ever had total loss of consciousness. He had an enlarged lingual tonsil, which I removed, but without benefit as far as the laryngeal crisis was concerned. The condition extended over several years, the crisis gradually becoming less prominent, but in the course of five years locomotor ataxia became plainly manifest, so that I have since regarded the laryngeal crisis as a prodromal symptom of the locomotor ataxia, of a nature similar to gastric crisis and other curious prodromal symptoms of tabes. I do not mean to suggest that the essayist's case of laryngeal vertigo is of a tabetic nature, but only that some centric neurosis is fundamental to it.

THE THERAPEUTIC USES OF FOOD.*

J. H. Salisbury, M.D.

CHICAGO.

The nutritive value and use of food has received thorough investigation, so that it would be trite and unprofitable to attempt any discussion of it at this time. But the use of food as medicine, for the purpose of accomplishing definite therapeutic indications has received less attention, and, I think, is of sufficient importance to justify a short review, because, even if some of the facts are well known, they are not sufficiently emphasized.

An intelligent use of food for therapeutic purposes requires that we give attention not merely to the effects of food in building up wasted tissue or in furnishing energy to the body, and that we determine the quantity of food necessary to maintain good nutrition, but that we investigate the action of food on the functions of the various organs and determine the effect of the qualitative and proportionate composition of the diet.

Many studies of the action of various foods on the digestive organs have been made. We call attention to the results of the chief of these, in reference to the sensory, secretory and motor functions of the stomach. The effects of food on sensation are indeterminate and are, for the most part, to be classed as idiosyncracies. A healthy man has no sensation on taking food, although local sensations of pain are sometimes felt after too cold drinks and indirect sensory effects, such as headaches, asthma, etc., are often observed from various articles of diet, such as strawberries, shellfish, etc. These results, while interesting, are at present so indefinite as to give no ground for therapeutic deductions, further than the warning to give heed to individual experience in dealing with individual

*Read before the West Side Branch of the Chicago Medical Society.

cases. Strauss, however, uses sugar as a remedy for the purpose of relieving the pain due to hyperacidity.

The action of food on secretion is better known. The experiments of Pawlow and his students, by a method which permits of securing the pure gastric juice, have determined that pure albumin and carbohydrates have no effect on the secretion of gastric juice. On the other hand, water exerts a certain stimulating action and the secretion of the gastric juice is powerfully stimulated by the extractives of meat. This fact allows of important therapeutic application, not only negatively, but positively.

The action of meats, in increasing the secretion of acid in hyperchlorhydria, is thus explained, and the method of overcoming the difficulty is indicated. Meat is of value for nourishment and for the neutralization of acid, but the extractives are stimulants of secretion. Recent observations indicate that the symptoms in hyperacidity are due, not to the amount of acid simply, but more largely to the excessive secretion. In hypersensitive conditions of the stomach, the extractives may excite the secretion of more gastric juice than is needed for digestion of the meat and more than it is able to neutralize, and in this way may be the occasion of suffering. The exclusion of these extractives is, therefore, very important in hyperacidity and the use of meat extracts, gravies, soups, etc., should be avoided. This negative therapeutic result, which consists in the removal of an exciting cause is, however, outside the scope of our subject, which includes properly the positive use of a form of food to produce a definite result. This positive use, however, comes into play when we use the extractive to stimulate the secretion. This exemplifies the utility of beef tea, meat extracts, etc., which scientific physicians have been inclined to discard because they possess no nutritive value. The use of beef tea or extract, or of meat soups, to stimulate the secretion in chronic gastritis, suspected achylia, nervous dyspepsia, and other conditions of diminished secretion, has a truly rational basis. There ought to be no tonic more valuable than properly-prepared, appetizing meats, and the gravy made from roast or other meat. This also explains the use of soup before the heavier foods.

The inhibitory influence of fats upon the secretion of gastric juice has been known for some time. Pawlow claims that this is exerted only when fat is mixed with other food. The use of fat for the restraint of the gastric secretion is a method which has been very successful. Lately, Conheim and others have introduced the use of olive oil in such a way that it becomes essentially a medicament, as much as when we employ an emollient salve to an external wound. The oil is given in comparatively large doses and unmixed with other foods, but it is not used especially for its nutritive effects.

The investigations of Cannon have shown us some of the laws by which the movements of the stomach are determined. The carbohydrates leave the stomach earlier than other foods. Fats which cause the secretion of little acid are retained longer, while proteids, which are digested in the stomach, are retained longest. The different rates at which foods leave the stomach indicate the possibility of obtaining therapeutic effects by order in which the constituents of a meal are taken. Thus, if the first part of the real meal consists of carbohydrates, they will pass quickly into the duodenum, thus lessening the burden of the stomach, which may devote itself to the digestion of the proteid part of the meal. If, on the other hand, the proteid be taken first, it accumulates in the pyloric portion of the stomach and hinders the exit of the fats and carbohydrates, which must remain until the proteids have been digested. In cases of dyspepsia, it may be possible to facilitate digestion by regulating the order in which the various kinds of food are taken. While these investigations of Cannon have not, as yet, been the subject of clinical report, it is to be hoped that the practical application of them will give good results.

Investigations in regard to the molecular concentration of the stomach contents have thrown some light upon the movement of the stomach contents, and the interest attaching to this problem will, it is hoped, lead to further investigations. These investigations show that mineral waters do not leave the stomach until their concentration has approached the concentration of the blood. If the original

concentration of the fluid was higher than that of the blood, it is lowered by the secretion from the stomach, or by the swallowing of saliva. If it is too low, the compensation is brought about, not by the absorption of water, but by the secretion of solids, principally chlorids, through the stomach wall. While mineral waters can hardly be called food, we may regard ordinary water as food, and the application of the above fact appears when we consider that, in giving the concentrated solutions of salts, we may expect the solution to remain in the stomach until it has reached a sufficient dilution. But if it is given in a solution, whose concentration approaches that of the blood, almost immediate expulsion into the intestine may be expected. On the other hand, it would appear that drink of a lower molecular concentration than the blood, must stay in the stomach until its specific gravity has been raised.

Similar facts have been ascertained regarding ordinary stomach contents, so that we can understand how a dry diet requires dilution, either by saliva or by the secretion of the stomach, until it approaches the concentration of the blood. Such a diet may, therefore, be prejudicial in hypersecretion, and, perhaps, also in motor insufficiency in which it was recommended. It will be worth while to try it, however, in cases where the secretion is diminished.

In the intestine, we find a field in which the application of food for therapeutic purposes are numerous, notwithstanding the fact that many processes going on in the intestine are not clearly understood. Pawlow has learned that fats stimulate the secretion of bile, and acids that of the pancreatic secretion. These facts give us indications for the therapeutic use of those substances. Without doubt, one of the chief uses of oils, in torpidity of the liver and in gallstone disease, is the stimulation of the biliary secretion. The use of hydrochloric acid in achylia is largely beneficial by exciting the activity of the pancreas. The acid of fruits has a similar action.

The most important therapeutic use of foods in intestinal disorders are for the treatment of constipation, diarrhea and intestinal putrefaction. These uses of diet are by no means new, and it is only that we may show the strictly medicinal and not dietetic action of the agencies employed, that I desire to dwell upon them. The dietetic treatment of constipation rests essentially upon the presence, in certain foods, of laxative principles. These have been classified by Boas, as follows: Water, sugar, fats, acids, salt, indigestible residue. To these we must add volatile and fixed fatty acids, produced by fermentation of the carbohydrates. In selecting foods for the treatment of constipation, we must have regard to these elements.

Water, sugar and fat are true nutritive elements, and it may be said that it is only by giving them above the needs of the body for nutrition that they become therapeutically active for the treatment of constipation.

Acids may, on the other hand, be regarded as foreign to the system and strictly medicinal. Of the acids available for this purpose, the preference is to be given to acetic and citric acids as milder in their action, which is especially to be desired in chronic constipation.

Salt is recommended by Boas, to be given in the morning on an empty stomach, so that we may regard it strictly as a drug and not as a food. It has been recently stated that a pint of normal salt solution, taken on an empty stomach, is a certain intestinal evacuant. Recent studies of the action of chlorids in nephritis and other organic affections point to the need of caution in the use of salt for this and other purposes. Indigestible residue is of two kinds, viz.: the fibroid tissue of meat and the cellulose of vegetables. Its action must largely be described as mechanical, making the feces bulky. The cellulose also includes in its interstices a certain amount of starch and other fermentable carbohydrates, which serve as pabulum for the nourishment of micro-organisms. Mechanical irritation is to be avoided in certain cases, especially in neurasthenics, with a tendency to spastic constipation, so that here again we have a reason for a thorough understanding of our remedies, even if they are nothing more than turnips and cabbage.

The use of diet to furnish food for micro-organisms, finds several applications,

and indicates the nicety with which the modern therapist needs to use his materials, in order to control the complex processes going on in the bowels. The normal stimulus to the action of the bowels is produced by fermentation in the lower bowel, by which gases and acids are formed from the carbohydrates, which have escaped the action of the digestive ferments. In order that this may take place, the digestion of carbohydrates must proceed at such a rate that there will still be a residue left for the action of micro-organisms. In the constipated individual, digestion proceeds too rapidly, starch is absorbed before the feces have reached the lower part of the bowel, and the requisite amounts of gas and acids to act as the normal stimulus to defecation are lacking. The aim of the therapist should be to retard the digestion of starch. Several ways of accomplishing this object may be suggested: 1. The carbohydrates may be supplied in excessive quantities, but as these substances are easily converted into soluble forms, it is difficult to exceed the intestinal power of absorption. 2. The carbohydrates may be administered in the form of green vegetables, roots, etc., containing much cellulose, by which they are shielded from the action of the digestive ferments. This is the rationale of the ordinary dietetic cure for constipation. It is useful, but not always successful. 3. Hydrochloric acid may be given, to restrain the activity of the salivary digestion, so that the starch may pass from the stomach largely undigested. The use of hydrochloric acid may, I believe, be quite serviceable in cases of achylia where constipation is present. 4. The use of raw food is rational for this purpose. I have endeavored to make a salad of raw potato, finely grated and mixed with finely grated apple. Such a salad, however, is not palatable to many people. Raw turnips ought to be tolerable, as many people eat the white turnips in a raw state with considerable relish. I understand that a certaining advertising physician, in New York, recommends raw oatmeal for the purpose of overcoming sluggishness of the bowels.

A. Schmidt has proposed the use of agar as a substitute for starch, and finds that this substance produces a bulky material, slowly soluble in water, which forms an excellent culture medium for bacteria. He reports good results with this method.

For diarrhea, the positive uses of food are not numerous. Some vegetables and fruits have marked astringent properties. Boas said that one can constipate with a strong cup of tea or coffee, or a glass of port wine, as surely as by a dose of opium. These remedies are, therefore, to be avoided in constipation, but fulfill a positive indication in diarrhea. Many cases of diarrhea depend on a disturbance of the stomach in which hydrochloric acid is deficient or lacking. In such cases, the connective tissue of meat fails of digestion and becomes a mechanical irritant. This undigested proteid residue undergoes putrefaction readily and brings about the production of irritating products which occasion diarrhea. The proper preparation of meat by long cooking, boiling or stewing, so that the connective tissue becomes gelatinized, obviates these dangers to a large extent. The process of putrefaction may also be retarded by a proper balancing of the various elements of the food.

The control of putrefaction in the intestine is better accomplished by diet than by medicine. Many therapists put little reliance in intestinal antiseptics. To change the soil on which the microbes of putrefaction flourish seems more desirable than to attempt to exterminate the intestinal flora. It has been shown that in a mixture of carbohydrates and proteids, ordinary fermentation of the carbohydrates precedes putrefaction of the proteids. If the proportion of carbohydrates be increased, it is possible to displace the noxious putrefaction by the comparatively harmless fermentation of carbohydrates. For the accomplishment of this purpose, a milk diet is frequently of great service and its value is due to the milk sugar. As the percentage of proteid, even in milk, is higher than is necessary, the addition of carbohydrate in the form of sugar, starch, or toasted bread secures a better balanced diet and one less liable to putrefaction. The liability of proteids to intestinal putrefaction should be borne in mind in arranging the simpler diets where a large amount of a single food is to be used. A diet consisting largely of eggs, as used in some sanatoria, needs to be balanced by a sufficiency of carbohy-

drates to keep the putrefactive organisms busy and prevent their attacking the proteids.

Many other therapeutic actions of food could be mentioned in connection with the function of other organs, such as liver, heart and kidneys, but what I have given, is, I think, sufficient to illustrate the proposition that we should prescribe the diet, not merely with reference to the furnishing of sufficient nutriment, but also with regard to the effect which the various foods may have upon the specific function of the different organs.

982 West Adams Street.

SOUTHWESTERN DISTRICT.

The annual business meeting of the Southwestern branch of the Chicago Medical Society was held June 5, 1906, at the Grace Café, 540 West Sixty-third Street.

The election of officers resulted as follows: President, R. M. Parker, 3603 Indiana Avenue; vice-president, V. D. Lespinasse, 601 West Sixty-ninth Street; secretary and treasurer, C. H. Lovewell, 5500 Halsted Street; official reporter, A. E. Mowry, 3505 Indiana Avenue; councilor, F. R. Green, 5627 Prairie Avenue.

As so much of the time of each meeting has been taken up in the discussion of business matters concerning the society, Dr. C. H. Miller moved that the constitution be so changed that the business matters pertaining to the society be disposed of by a board of councilors, composed of the president, secretary, three ex-presidents in line and two members of the society to be elected each year.

The motion was carried and Drs. H. R. Boettcher, 6306 Harvard Avenue, and H. H. Mather, 7847 Normal Avenue, were elected as councilors for the society.

ALBERT E. MOWRY, M.D., *Official Reporter.*

SOUTHERN DISTRICT ANNUAL MEETING.

The annual meeting of the Southern District branch of the Chicago Medical Society was held Thursday, June 28, at 756 East Forty-seventh Street, about forty members being present. After the reports of the officers of 1905-6 were read, the election of officers for the coming year was held. Dr. Frederick A. Besley was elected president, Joseph L. Miller, councilor, and W. S. Harpole, secretary.

The medical program followed and consisted of a paper on Pelvic Infection by Dr. T. J. Watkins, which received a full discussion at the hands of Drs. Frank T. Andrews, Wm. Cuthbertson, Wm. Fuller, H. D. Peterson, Charles E. Paddock and others.

W. T. HARPOLE, *Secretary.*

PHYSICIANS' CLUB OF CHICAGO.

A regular meeting of the club was held at the Sherman House, Tuesday evening, April 24, 1906, with Dr. C. S. Bacon in the chair. The subject for discussion was The Relation of the Physician to Compulsory Sickness and Invalidity Insurance.

Dr. Bacon, in calling the meeting to order, said: The subject that the club has under discussion this evening, compulsory sickness and invalidity insurance, is one that is particularly appropriate at the present time. Physicians are interested in it, as every citizen is. It has a very broad bearing on the welfare of the state. But we have this special interest in the subject: that it also affects particularly the medical profession. The members of the Chicago Medical Society have been considering some of the subjects related to this. Some of the economic and business problems of the medical profession have been brought before the attention of the societies this year, particularly the question of contract practice. We are trying to reach some wise decision that will be of benefit to the physicians and society, and that decision can only be reached by settling the matter in a very broad way. The subject of compulsory insurance is one that must affect the medical profession, for it has a decided bearing on contract practice. Sickness and invalidity insurance must require some co-operation in some way or other from physicians, and physicians must be employed. If a measure that has the sanction

of the government and the authority of the state, which requires the employment of physicians, comes into existence, it is probable that, like the present indemnity companies, it will try to secure the services of physicians at low, unfair fees. Hence we may have a very acute interest in this question. Without taking any further time, I am sure we are all extremely fortunate to have with us to-night such a man as Professor Henderson, who has given this subject so much attention. I introduce to you Prof. C. R. Henderson, of the University of Chicago.

Prof. C. R. Henderson:—I shall take up two aspects of workingmen's insurance. The first aspect is that which makes its appeal to you simply as good citizens interested in the welfare of your fellow men, certainly as much as any other profession among all the learned professions, and I make my address to you upon that aspect of it with the absolute confidence that what I have to say to you as citizens will receive a most cordial and kindly hearing. In the second place I shall speak of your professional interest. I shall not attempt to cover the whole of this great problem, which requires volumes to discuss, but shall select certain aspects in which you are more particularly interested. The subject before us is not entirely new, but intelligent men among us have not yet given it that consideration which it has received on the other side of the Atlantic. You are aware that the United States in this respect is the most backward nation on earth, that little countries like Denmark and Scandinavia are in advance of the United States in taking social care of members of the working classes. The United States, however, will probably in time make a more rapid advance in this regard than any other nation. At least we flatter ourselves that it will do so.

My friend, Professor Shorey, the cultured professor of Greek in the University of Chicago, is fond of telling the story of a Western man who said of the United States: "We ain't much cultured in the West, but when we get it we will make it hum." And when we come to the point where we undertake workingmen's insurance in earnest it will probably grow more rapidly than it has in other countries.

In a recent letter Dr. Zacher, editor of the series on Industrial Insurance Abroad, said in all frankness that while Germany was at present much in advance of the United States in this field, Germany has even now much to learn from the United States in regard to certain methods. It is known to you and it is stated on the program of this evening that I am secretary of the Illinois Industrial Insurance Commission. While that is true, I want it understood that I am speaking simply as an individual. This commission has only had a few meetings and has reached no conclusion and it has no policy to announce. What I shall say to you will be said simply upon my personal responsibility. We are doing serious work and by the beginning of next year we hope to have something in shape for the consideration of the governor and of the legislature.

The able actuary, Dr. Frederick L. Hoffmann, of the Prudential Insurance Company, says that the workingman is a national economic asset. He is worth at least $300 a year and ought to be able to work from 15 to 60 years of age, about forty to fifty years. Among the things which prevent his efficiency, of prime importance, are disease and accidents. In taking care of the workingmen we are not so much bestowing charity as making an investment. This is the standpoint which is being taken more and more by professional and business men. When we take that standpoint we remove it from metaphysical speculation, from the philanthropic and charitable sphere, and put it upon a business basis. A great majority of the people in our large cities are an economic asset; their health and longevity are matters of national economic importance. The causes of diminution of industrial efficiency can be found and measured. In considering these we need your help. It is an indispensable element in the progress of workingmen's insurance in this country. First of all, we want to get accurate, scientific and precise knowledge as to the facts in regard to the causes of sickness, especially of occupational diseases, which interfere with the public health, and also as to the causes of accidents. We have not adequate machinery for this at present. If we could have medical supervision of factory inspection and legal arrangements made for it undoubtedly we would find many things in regard to the causes of accidents and

sickness which we now know are deliberately concealed from us by business men because of the antiquated liability law which is cursing our whole nation to-day. The law almost compels great manufacturers to conceal all causes which ruin people's health and which subject them to the danger of accident and the loss of life. That is familiarly known. I could gather plenty of evidence on that point from men in this room. There are those who are interested in exploiting these facts for private interests, as certain lawyers and others.

We need to know, for the economic progress of the human race, every cause of disease that is inherent in occupation or in the habits of the working people. We have a right to know. The workingmen have a right to know. We can not bring about sensible legislation without it, and protective measures or protective legislation must be based upon precise and comprehensive knowledge of the causes of both sickness and of accident in connection with industry, and if inspectors can not give us these facts without causing unfair litigation, then the manufacturers must be legally protected. If they give us full statements of the causes of sickness and accidents of occupation, we must protect them from undue financial burden in connection with the exposure and giving of this information. We can not proceed to protective and insurance measures unless we have this knowledge of the causes of accident. This is a matter in which medical men are directly interested as good citizens. We should have a code of protection, and in the formation of that code of protection against disease and accident in connection with occupations the medical fraternity might be in a commanding position and represented with the administrative authority. We have imposed upon factory inspectors in many of our states an impossible task, which exposes them to undue temptation and frequently leaves the workingmen with defective protection. The human race has arrived at that stage of knowledge where we can construct a systematic code of protection against accidents and disease. In the formation of that code the medical profession will have a large share. We should have such a code in the state of Illinois.

In the education of the public concerning the prevention of tuberculosis, one of the most serious causes of invalidity, you have rendered a great and splendid service, for which, as one of the citizens of this commonwealth, I take this occasion to thank you most heartily. It is one of the preventable diseases and it is largely connected with occupation.

Mr. Hoffmann gave some figures in regard to the deaths among stonecutters caused by the irritating particles of their materials of work, and the evil is in great measure preventable when the employers know about it and think about it. Sometimes the method of teaching must be by legal requirement, because there are some people who will never learn what the ten commandments mean, or the beatitudes, until they are formulated in the law of the state and enforced by penalty.

The policy of insurance means that every workingman is exposed to several very great calamities which may befall any one. As a matter of fact, they fall upon a certain average number of persons, varying with the different occupations. All of them are causes of economic loss and social distress, loss of time from sickness, loss of wages from accident, loss of income from invalidity, unemployment and old age. If I can put before you distinctly what Germany, the most advanced nation in this respect, has achieved, I shall have accomplished my object. According to the German notion, a part of the risk of sickness belongs to the community. For instance, one-third of the sickness from tuberculosis may be said to belong to the community, which can be prevented by the community in great part. Many causes of sickness can be partly prevented by the community. The workingman carries two-thirds of the premium and his employer pays the other third. But does the employer pay it? Primarily he does, but a large part of it comes back upon the people of the nation in the price of products, and often the workingmen have to carry much of it, but at any rate the burden is divided. A recent Michigan report of labor shows that a small per cent. of the accidents reported in a certain line of industry was due to defects in the protective measures required by law, and so the liability law protects very few workmen. Most accidents are due to the *risque professionnel* and unavoidable. A certain number of men must

each year have their hands or feet crushed; they lose an eye or both eyes or are incapacitated for ten days, two hundred days, or, it may be, for the rest of their lives. In a country with an insurance law the expense incidental to these accidents is charged first to the employer. He pays all premiums, because he is considered the only man who can distribute the loss for the community, and employers combine their efforts through private companies or mutual companies to cover the risks.

In the case of invalidism and old age, the workingmen pay half the premiums, the employers pay the other half and the empire adds a small subsidy for the old people or invalids who receive pensions. I do not say that this system can be introduced in the United States, but the principle is already introduced. It is being rapidly extended under the pressure of enlightened intelligence in regard to the causes of disease and accident, and the share of responsibility and duty on the part of the community itself.

In 1897, after having tried to amend, repair and tinker the common liability law, Great Britain finally passed the compensation law, which provides that the employer should pay a certain indemnity for a certain time, or in case of death a certain lump sum for persons injured in his employ. That threw the burden on the employer, and the natural result was that in Great Britain employers banded together in mutual insurance companies. Already railroad insurance departments have been formed in this country. A large part of the cost of solicitation and collections can be removed by the simple device of making a contract with men for the premiums and taking it out of their wages. In the case of one ordinary employers' liability company it is said 50 per cent. of the premium goes to pay for solicitation of business, 10 per cent. goes to profits and cost of administration, and only 40 per cent. goes from the employers' liability companies to the workingmen, and of this 40 per cent. lawyers get 33 1-3 per cent. (Laughter.) If we could begin with the English compensation law we should have a certain amount of compulsory insurance, although there would be nothing said about insurance in the bill. Under such a law the employers of the state would be competent to organize their own insurance schemes, and there would be plenty of insurance companies on the ground ready to assume risks if such a law went into effect. This was what was done in England and similar results would follow here.

In regard to sickness insurance, it will take longer to bring it about, but that will be the logical result of accident insurance. During the first thirteen weeks sickness insurance ought to care for those who have sustained slight injuries. As we have no sickness insurance organized in this country, the accident insurance might begin with the second week. There are at least a half dozen different methods of insurance already effectively at work among us. The railroad corporations have already organized sickness and accident insurance, and some of them old-age pensions, and are doing it very well. I do not think their plans are altogether just, but they are an immense advance over what we had before. Some of the trades unions have thoroughly sound methods of dealing with sickness and invalidity, and some of them have old-age pension schemes. There is no reason why the principle of the fraternal societies should not be extended much further than it is.

Dr. Bacon has called attention to the matter of contract practice, which is liable to abuse. It has been abused, but it is bound to grow if it is economically sound. It has vindicated itself in certain forms, in connection with the sanatorium, the fraternal insurance form, etc., but you do well to bring the practice under careful control and direction.

I now wish to turn to the second aspect of the question, namely, how will insurance affect your professional interests? Let us say frankly that if workingmen's insurance is established on a wide scale for some time to come the medical profession will probably at certain points have to bear a share of the public sacrifice. I believe you are ready to do it. I do not want to conceal my own conviction as a student of this subject when I say that the medical profession, with the employers and general public, will have to carry a part of the load, and the rates and fees may be improperly fixed, and the suffering of the younger members of the

medical profession may be increased in that way. The problem ought to be met in advance. It ought not to go before the medical profession in an unintelligent way. It should be met frankly and candidly by the state and the evils that have crept into the German administration should be guarded against in advance. Medical men in Germany are not properly paid for their services. There is general complaint and they are trying to remedy it. I read a report of physicians sent to the Vienna Congress of Insurance asking more adequate compensation for medical services. But in some ways your burdens would soon be lighter under a good system of insurance.

In the first place, the charity cases will be eliminated under this system. There is no profession which is so heavily burdened with charity cases as the medical profession. There is no set of men giving away so much of their services to the poor as the doctors. Something will have to be done to dispose of charity cases, which do not belong at all to insurance. Workingmen's insurance is not pauper insurance. You can not insure paupers. They have to be cared for by public or private relief. If we could eliminate all except the capable from getting into the working class, who have regular wages and can lay up something for times of accidents, invalidism and old age, we could at once relieve the medical profession of an actual burden and pass it over to the charity institutions, where it belongs, or to the insurance organizations. Most of you derive most of your income from the well-to-do class and the wealthy. They are not in the system of social insurance. They can buy their insurance from companies; they do not need our sympathy nor attention, and they do not concern us. Insurance schemes have to do with people who are earning per family $350 a year up to $900.

Insurance is a national or state method of seeing that doctors get their pay and that industrious workmen are not pauperized. You can not do your work unless you are well paid. Any commission that brings a law before the legislature is bound to consider every social interest that may be possibly affected by new forms of legislation. In making plans for compensation or compulsory sickness insurance you should be represented in the councils which will draw up the law itself. In the second place, you should be represented in the administrative organ of the state which supervises the operation of the law when it is passed. Your interests should be protected at every point. Insurance would place you, so far as your practice among the working classes is concerned, in a more dignified, useful position than any method that has ever been devised. At present you come to us and try to keep us from dying. We call you in whenever we have a pain. We pay you simply to cure us or to mend us. Sometimes you succeed, sometimes you do not. You may keep us running a little longer. That is what you are paid for. Here is a new branch of your science and of your professional service—preventive medicine. Preventive medicine is one of the most sublime facts or moral heroism in human history. I believe the medical profession under the present circumstances are probably already carrying a great deal more than their share of the financial burden simply because they are putting themselves out of business. In social insurance a new principle enters. You are to be paid for preventive medicine, not merely for curing and mending, but for preventing disease. You ought to be paid, and you can not continuously do your work well unless you are paid for it. You take a great step in advance when you increase industrial longevity and industrial efficiency. I am not pleading for the pauper. I am talking about the self-supporting industrial group and am keeping that class before you. These men ought to pay you and they desire to be independent. By social insurance workingmen will be able to pay you, not only to be mended or cured, but also to compensate you for preventing tuberculosis and other diseases. Perhaps there is no man who is better informed on such points in the United States than Frederick L. Hoffmann, who deals with hundreds of thousands of these cases. He asks that our boys and girls in industrial life shall be examined before employment and periodically afterward by doctors. Why do we go to a dentist every once in a while? To save our teeth from becoming too badly decayed. Why do we consult an oculist? Because we find that we can do better work if defects are corrected in time. If every man, woman and child were in-

sured and examined by a physician twice a year, many of them would not only be prevented from becoming sick, but every atom of muscle and brain would be worth more to the nation.

Society can not expect you to practice preventive medicine thoroughly and permanently without reward. In order to have capacity to serve a community a professional man must have income. The income we get is simply an opportunity to do something for our fellow men. You can not treat people day after day, as a steady thing, without being properly compensated for it. You know that a man, if he does not pay you cheats you, and he is degraded by it. When a doctor is properly paid for his services rendered to workingmen it helps him to build up and to make more efficient wealth producers. And industrial insurance provides the necessary funds without begging.

In closing I wish to say that I need information for our Industrial Insurance Commission, and I ask you to write me letters giving substantial facts in regard to the causes of sickness and accidents, and any information or views which you can furnish me will go before the commission.

The Chairman:—It is very evident that the subject of insurance is a live one and is bound to come in some form or other. It is also very fortunate that, as the secretary of this commission, we have so well informed and so broad a man, who understands the medical profession so well as he (Professor Henderson) does. It is also fortunate that this subject has not come up before, but comes up now, when the reorganization of the medical profession has progressed so far as to give it an influence. The medical profession itself will have something to say on this subject, particularly in the working out of new laws at Springfield. Heretofore laws have passed the legislature before hardly any members of the medical profession knew anything about them. Now we are getting ready to meet the conditions. In this city we now have such an organization of the profession that we can bring our combined influence to bear. By the action of the council of the Chicago Medical Society three months ago its committee on public relations and its organization committee, consisting of one representative from each of the twelve districts of the city, were authorized to take what measures are necessary to carry out the will of the council in regard to any legislative measures, either national, state or municipal, so that now we have a machine which can be made a powerful one. Through this organization committee the whole profession can be reached in a few hours to carry out the will of the society through its representative body, the council. Not only that, this organization can be used to get the opinions of the profession. It can be used to obtain a referendum, and so in the future the profession can and will be represented by its own representatives, not, as in the past, by individuals who, for one reason or another, might put themselves forward and be counted as representatives when perhaps they do not at all represent the profession. Therefore I say it is fortunate that this subject has not come up until the profession was so organized that it has a good deal to say in the discussion of the matter. We should see that the suggestions made by Professor Henderson, that members of the medical profession should be on the commission to administer the law, be adopted, and thus we can secure action that is wise and just to us, as well as to the society.

The discussion this evening has two objects in view, one of which is to present facts and important points to Professor Henderson from those that are present. The other is to enable those present to obtain from him, through questions and discussions, information for themselves. We have with us representatives from many institutions. Although the number is not large, it is certainly representative of the profession of this time. We have with us the president of the State Board of Health, Dr. Webster, and the commissioner of health of Chicago, Dr. Whalen, and likewise representatives from insurance organizations and railroad companies. The discussion will be opened by Dr. Billings, who represents, I suppose, neither the health department nor any other organization, but who is a specialist in matters that concern the public.

Dr. Frank Billings:—I did not expect to speak to-night, but found only yesterday that I was assigned to open the discussion. I am sorry for this because,

while I am very deeply interested in the subject and have read to some degree upon it, yet I do not feel capable of discussing it intelligently.

First, I want to thank Professor Henderson for what he has said. I think we have all learned more of the principles of invalid insurance from him than we could have learned in a long period of time from other sources. Those who are well acquainted with the compulsory insurance against invalidism and old age in Germany, through visits to Germany or from reading the German medical journals, know something of the subject of insurance as it is carried on in that country and of its effects upon the community and on the medical profession. In Germany there is something wrong with the principles of insurance of this kind, because it receives the condemnation of the great body of the medical profession there. Its main faults are that the fees to the doctors are so small as to have a pauperizing effect on the profession, and, second, the principles of the insurance do not permit of a personal choice of the insured in the selection of the physician. I have learned that in many instances the fee is not more than 10 pfennigs (2½ cents). The physician is chosen by a lay commission for any given community or body of insured, and this permits of political favoritism in the choice of physicians. So great became the objection that at Leipsic the medical profession formed a bund and later many of the profession in other parts of the empire joined in a united movement agreeing not to attend the insured individuals. I understand that the physicians petitioned the reichstag to modify the law governing such insurance in reference to fees and also in reference to the matter of assigning physicians to groups of persons insured.

In England we learn from the *Lancet* and *British Medical Journal* that there is also much complaint from the physicians in regard to the law for attendance upon people insured against invalidism and also for the attendance upon employés of corporations and upon the poor in certain districts. In many instances the fee there does not amount to more than one or two pennies. It has been stated that where the physician receives practically no compensation the tendency is to slight the work and to give superficial attention to the patients.

We must admit that we shall be forced to face this problem of insurance against invalidism and old age in this country. It is bound to come and the medical profession must study the subject and attempt, if possible, to so modify the principles of the law, as it shall be established here, that it will work as little hardship as possible to the profession and at the same time be efficient. We have already a contract system in this country which is in many ways objectionable. Large iron mills, steel mills, manufactories, etc., hire physicians by contract. Last week I was in consultation with a physician who stated that he had had considerable practice in the planing mills along the river; that he had received 50 cents from each employé per month under contract with the corporation employing the men; that recently he had been superseded by another doctor who secured the work by contracting to do it for 25 cents a month per man.

The adoption of this insurance will be an especial hardship upon the physicians in the rural communities. In the country it does not cost a laborer who earns $400 or $500 a year as much to live as in the city, and he is, therefore, able to pay the country physician a fee, which is important to the doctor. To take this income away from the country doctor would mean a good deal of hardship. In the city the earner of the above-named sum would spend it all for his living, and the doctor would receive nothing, as a rule, so that the city physician would not be as much affected as his country brother.

All of these embarrassments, as they appear now may not seem so great to us when we have had a better opportunity to study the principles of this form of insurance.

Certain it is that now the doctors take care of at least 50 per cent. of the people who earn from $300 or $400 to $800 a year without compensation, for such people when ill have little or no money, and in the city especially they go to the hospitals for free treatment. If, under this principle of invalid insurance, such people pay into the fund which shall be applied to their care when ill, the physician will have an opportunity to secure something for his services. As he will receive, however,

more for keeping these people well than for attendance upon them when sick, such insurance will be of the greatest importance as a preventive measure. It will also result, in all probability, in the erection of hospitals for workingmen, which will be conducted upon more economic grounds than our present municipal hospitals, and the latter will be relieved of the burden of taking care of the people who come under this class of insurance. This will directly relieve the general tax which all of us pay for the maintenance of our general hospitals. It ought to have an effect, too, upon state institutions and enable them to be conducted in a more scientific manner than they are now, because a greater number of physicians and nurses would be employed for each.

In one of the state institutions which I have recently visited there were 1,507 inmates, as it was stated, and I found three physicians, including the superintendent, to look after this enormous number of people. Consequently it was not possible to differentiate the inmates or to make proper examination of them. I feel quite sure that we shall adjust ourselves to the new order of things and that finally it will not become a great burden to the medical profession. It will be unquestionably of great economic benefit to the community as a whole, and if, as Professor Henderson thinks, and I believe he knows, it shall prove a preventive measure of great value, then we shall be encouraged to join with the remainder of the community in helping to establish it in this country.

Dr. Arnold C. Klebs:—The subject of insurance has interested me very much from the standpoint of prevention of tuberculosis, and although I have some statistics on the subject I am not going to bother you by reading them. They have a certain fascination, however, and they are important, but, as Professor Henderson has said, they are troublesome and dry in meetings of this kind. The way I became interested in insurance was through tuberculosis work in this city. We have here, as you know, an institution which tries to educate the people on the question of prevention of tuberculosis, once the tuberculosis committee of the Visiting Nurse Association, now the Chicago Tuberculosis Institute. This work, if it is to reach many people, will cost a lot of money. It is a serious problem how to get this money. I have to go around and beg and beg, and I have carried the burden practically alone of getting money together for carrying on the work on a comparatively small scale. When we consider how many people we ought to reach by an educational campaign we can not hope to get money enough in this way for years to come. We may stir up public sentiment by more or less sensational newspaper articles. We can get matinees and charity entertainments, but by and by these enthusiastic and therefore spasmodic resources will fail us. A continuous and sustained effort is absolutely needed if we would accomplish anything against tuberculosis. Therefore we are looking around to see what is being done in other countries. There is the glorious example of Germany, with its sickness, invalidity and other forms of obligatory insurance. I was delighted to hear Professor Henderson dwell especially on the impetus of insurance work in Germany as bearing on preventive medicine. That is to my mind one of the most important. I have talked to railroad men on the subject of their sick benefit insurance, and in doing so some interesting points were brought out. I said to some of them, frankly, "I think your first idea in getting up a sick benefit scheme was to advertise yourselves as charitable men; then, by and by, you came to realize that it pays you to do it, because, first of all, by preventing accidents you save sick benefits." They go to work and determine scientifically what kind of accidents will happen in certain departments of the railroad, and what they will have to pay as benefits to those who are injured. This induces them to introduce safety appliances; the railroads save money by these appliances which they can utilize for other purposes, so that the financial gain by this method of prevention of accidents is apparent.

Among the diseases that attack the laboring man tuberculosis is the most important. We have become accustomed to have tuberculosis with us, and on that account we do not pay sufficient attention to it, but considering it from every point of view tuberculosis is by far the greatest tax on the community.

The German sickness insurance law was passed in 1883; after that, in 1889,

the invalidity insurance law was passed. Sickness and invalidity insurance had to face a tremendous financial problem, in that it was found that one-half and more of those insured were tuberculous. Tuberculosis is a most tremendous tax, not because it kills people, but because it disables them for such a long time. No consumptive dies as a man dies from pneumonia, after a few days, but he dies after being disabled for a year or possibly five years. He is partially or totally disabled. There is where the asset of which Professor Henderson spoke so eloquently is reduced. Invalidity insurance was recognized and utilized for the purpose of building sanatoria. It was proven, by the first sanatorium established by Brehmer and Dettweiler, that with thorough hygienic management of these cases the insured could be brought back to earning capacity after a certain length of time. After an average treatment of three months these people were restored to an earning capacity in fully 80 per cent. But that means not only the restitution of men to their earning capacity; it means that every one of these men has been educated in the principles of hygiene and goes out as an apostle of this teaching. The medical profession must learn to recognize what Professor Henderson has said: that prevention is our real, our greatest task. We may prescribe medicines and we may operate, but where we really do good is in the matter of prevention. That is our highest task, and a scheme which will put the great mass of people, the workingmen, on a basis of self-defense against disease, making them able to pay by deducting small amounts from their wages in time of health, will remunerate the medical man for preventive work. I want to add this: that since sanatoria have been used in Germany, under the insurance plan, they have found that they needed additional institutions; they have established open-air day camps, simple, inexpensive institutions, where patients are treated, sometimes before a definite diagnosis can be made of tuberculosis. They are sent to these places for a rest. They have a shack where there is a kitchen and some board shelves; they have their meals out of doors, and go home at night. On a similar plan they have established out-door schools. They have other institutions very simply constructed, so-called convalescent camps; there the patient is sent from a sanitarium and continues to live an out-door life, and is also taught agricultural pursuits. The open-air sanitarium is by no means a panacea for the treatment of tuberculosis; when a patient returns home to the same bad hygienic conditions and occupation, he often is again disabled. It was found necessary for such a man to change to some other occupation; and this is done in these camps and they have thus become an important adjunct to the sanitarium plan. The whole scheme, especially the provision for the invalid's family during treatment, is certainly one of the most important means against pauperization.

As to a scheme of this kind affecting the medical profession, I fully agree with Professor Henderson that it will not be detrimental to any great extent to the medical profession. It has been to a certain extent in Germany; it has affected a certain class of practitioners, in the county especially, but this is being improved rapidly all the time, by bringing these patients under institutional treatment. More and more, as soon as a man becomes disabled he is sent to an institution. The insurance scheme in Germany has shown that such institutions can be maintained at a small expense, with the greatest benefit possible to the community and the working man. In this way they will get a more scientific and better line of treatment, and there will be better compensation for the physician.

Dr. Billings has pointed out that we will be paid for preventing disease. We are paid now for sawing bones and giving pills, but for prevention, which is the most important aspect of the practice of medicine, we are not paid, and I believe firmly that such an obligatory insurance scheme will further this more than anything else.

It is usually thought in America that this German insurance scheme is an obnoxious paternal system. As a matter of fact, it is not at all. The government has established it, but, as it is now, it is practically run by the working men themselves; the government has no direct interest in it. The working man and the employer pay a certain share and when needed the employé draws certain benefits. With regard to the magnitude of the German sick insurance scheme, let

me tell you that from 1885 to 1903, they have paid out in sick benefits about three hundred million dollars. For benefits under the invalidity insurance law from 1891 to 1903, they paid out about two hundred million dollars. You see, these are tremendous sums. Under the invalidity insurance, there were treated in the last eight years about 101,000 patients, in sanitaria alone 90,000, at the average of three months and at a total expense of 35,000,000 marks. These are big sums, when we consider that they are made up by the two-thirds paid by the working men and one-third paid by the employer; it must mean raising the working man's value as an asset for the medical profession, and if we, as Professor Henderson has said, with our technical superiority in the management of benefit insurance by certain companies, are going to undertake anything similar, the medical profession must ultimately be benefited by it, not only financially, but by raising its standards in every way.

Dr. Fernand Henrotin:—It was very interesting to hear Professor Henderson on this subject. It was not so many years ago, when the state universities came into the work, that the older universities recognized the necessity of broadening their work, and Professor Henderson came on the field about that time, and took a broad view of the scope of what we call a university education, according to our modern understanding, and his name became particularly well known to many medical men, so that any ideas he puts forth should command general attention, for his views are always known to be valuable.

The subject of the evening is the relation of the medical profession to compulsory sickness and invalidity insurance. It is a difficult problem. The fact is, compulsory sickness and invalidity insurance are bound to come. It is proper that they should come. It is a part of the development of our republic and of the republican form of government. The government depends upon its unit, the citizen, for its entire management. Each man must do his share or the republic will not stand. How to get a body of men to do their share is another question, and problems are confronting us every day that threaten to shake the stability of the government. There are nefarious schemes of all kinds. We have municipal ownership questions, and things of that kind, in which the government and civic corporations propose to go into business. These schemes sometimes concern the individual citizens themselves. But the care of the republic for its unit, the common ordinary citizen, and his welfare, is a thing that is bound to come, and we can never control the masses until we bind up the material welfare of the individual citizen with the government; in other words, until we put something of our bread and butter, something of our pocketbook, in the government. When it is there, we will all be good citizens; we will not be good citizens until that time comes. This is one of the processes, one of the things that are bound to take place. In a government like this, we can not have anything else if we are going to stand and have any degree of happiness in the future. The relation of this form of insurance to the physician is a difficult problem. It brings us physicians face to face with that unfortunate item of contract work. Contract work is allied very closely to the work of the physician and to the subject of sickness insurance, and, therefore, it is very proper that we should ask Dr. Henderson to be very careful and take into consideration all that pertains to the physician and to our profession. The American physicians will probably find a solution. According to the proposed system, there is no question but that a large number of sick people will have to be attended to at very low prices. There is no question but that doctors will have to attend them for nothing or next to nothing, and that means again in one way or another a contract system. I think, eventually, the medical profession will be able to make certain suggestions to Professor Henderson and to those who head this movement, knowing that it is inevitable, and that for the public good, it should come. All physicians, who are worthy of the name of being good citizens, will apply themselves to the problem, and eventually find methods by which the contract system and the paying of low fees, in caring for the sick and management of tuberculous people and all that class, can be done without either pauperizing the people or lowering their estimation of the physician who attends them. I have been thinking of the contract system lately, because we have had this subject up

before our societies; we have appointed committees, and when the committees were appointed, they could not agree. Some men dared to say that there was some good in contracts. The solution of the contract system will eventually take some shape, but am not prepared to say what it will be. But as these people must be attended to, I think it must take some such shape as this, that certain communities will be divided into districts; that contracts will be entered into between a city or a county, or a country district, and certain groups of doctors, who will look after the sanitation of the district, who will look after the preventive part of medicine, who will attend to the sick, who will divide the work, who will attend to this one or to that one, and who will compare notes, keep books, and decide upon the proper way to do it without pauperizing the patient or without pauperizing or humiliating the doctor. Again, there is a wrong side to this thing of putting so many patients into one bunch or group. In some of the European countries, in some places and in some institutions, they have a method of segregating patients, which always ought to be kept in mind. I do not think all patients who earn from $300.00 up to $800.00 a year should be grouped as one class. To keep up one's self-respect, I believe that an individual who earns $400.00 a year ought to pay more than the man who earns $300.00. Each man should pay what he can, and each district should have ratios in proportion to what pay they earn. In classing the five-hundred-dollar man with the three-hundred-dollar man you are pauperizing the latter. We should bear in mind that the American doctor is not going to be humiliated. Professor Henderson said that he would do all in his power to have medical men represented on such a board or commission as he has referred to, so that they may give their views, for the dignity of the profession is more or less involved. I might say, and probably I represent most of the doctors in saying, that we are willing to take an active part in every forward movement, and that every intelligent man among us realizes that this movement is one in the right direction, as far as citizenship is concerned, so far as the future stability of our government is concerned. Furthermore, there is going to be a greater movement after this. Men are naturally improvident. I have always thought there was one way in which the government and citizens could work in harmony together. Patriotism is a good thing, and it is understood by every good American, but Americans are not all good. The consequence is that all Americans are not always filled with patriotism. In some way or other the government has got to be bound up with a man's material welfare, so that he who works for the good of the government will be working for his own welfare, and, some day there will be efforts on the part of the government to go into business for the purpose of developing the material welfare of the individual citizen. For example, there will be inducements given by the government, to the ordinary people, toward what I call insurance income, insurance methods of investment, by which poorer men can insure their future, which will be guaranteed by the government. This is one of the modified methods of life insurance which the government ought to go into, and this income insurance will come some day, and this invalidity insurance system is one of the steps leading to it.

As a medical profession, we can not commit ourselves to any contract by which we are going to attend the people for the lowest possible price. We all maintain that there is a certain remuneration in proportion to the ability of the individuals, which must be paid; that this ratio must always exist; that we never give a lower price, except for cause, and that it must be distinctly shown to us that in helping people we must do nothing either to pauperize patients or to degrade ourselves.

Dr. M. L. Harris:—There are a great many phases to the question brought up to-night, but I will only speak of one in particular, with which I have had some experience.

For several years past I have been surgeon to several large corporations, and during this time have had under my personal supervision thousands of accident cases and have had a hand in distributing millions of dollars of indemnity. I must admit that some of this money at times has not been distributed in a just manner, for the reason that many of those injured did not receive, perhaps, what they

were justly entitled to, while, on the other hand, many more have received many times what they were entitled to. The reasons for this are many, but principally on account of our laws as they now exist, and because of dishonest lawyers and dishonest, ignorant doctors. Few of you realize the extent to which doctors and lawyers are combined in this work. I could mention a number of specific instances, where people have gotten upon cars for the express purpose of receiving an injury at a particular point; had taken with them witnesses to the accident; had people stationed at the corners to see the accident, and had a doctor waiting around the corner to take care of them as soon as the accident occurred, and then had the patients hustled to a particular lawyer to attend to the damage suit. I could give a number of specific instances where this particular thing has been prearranged. I could give several instances where employes in factories had prearranged to be injured at a particular time; and I could give specific instances of people suffering from ailments, who palmed themselves off as having received such ailments in a particular accident, which was certified by the attending physician, when in reality the patients were not present at the particular accident at all. When such a system as this exists, it is no wonder that corporations fight for their existence, and that is what they are doing.

The statement was made that these companies started indemnity plans as a matter of charity. I do not believe that. Corporations are not known as eleemosynary institutions. They started these indemnity schemes as a matter of economy. There is little incentive for corporations to carry on these indemnity schemes under the present laws. I have attempted to look after the indemnity plans of corporations, and while they can be carried out honestly, so that they would be an economical investment, the laws are such that there is little incentive to do it. An employé receives an injury; the company will look after him; it will pay him his indemnity according to contract, and when it has done that and has fulfilled its part of the contract, the individual turns right around and sues the company for large damages, and many times gets it. The company says: What is the use of us paying this man his indemnity to give him money to turn right around and fight us, and win a large sum of money? The man may have signed a contract that he will accept the indemnity paid him by the company in lieu of damages, but the courts say that the contract is of no value, because the man had no right to sign away his rights in that way; that what the company has paid him in the way of indemnity he was entitled to. These are most important obstacles to the success of indemnity plans at present. Before companies will continue under the present law, there must be some law enacted to relieve these companies from further liability after they have once fulfilled their obligations of indemnity under contract and there must be some just way of arriving at a just estimate of what the damages are.

At present physicians go into court and testify before a jury that knows nothing about such matters. The lawyer does not want a man to testify who knows anything about the case. He wants, first, a medical man who is dishonest, and who will testify what he wants him to, and second, he wants a medical man who is ignorant, who does not know, and the man who is ignorant and does not know what he is talking about, nearly always makes the best impression on the jury. He will testify that he believes anything to be so because he is ignorant of anything different. That is a sad state of affairs for the medical profession, but it is the truth. Until some way can be devised to determine the amount of liability and the extent of the damage done, the companies will fight for their existence; they are not going to favor indemnity. These companies are anxious and willing to pay a just indemnity if it could be arrived at justly. If we can devise some insurance laws that will do that, the companies will gladly welcome them.

I have studied the German laws on this matter considerably. While they have many excellent and valuable points, they can not be applied to American institutions at present. Many changes must be made in the American character, in the American laws and in our American ideas of liberty, before they can be introduced into this country.

Dr. Wm. H. Wilder:—There is one subject so closely allied to the one we are

considering this evening that it seems to be a phase of it. I refer to the question of the dispensary and the abuse of it, which we are accustomed to speak of as the dispensary evil. This subject is extremely important to medical men, and it seems to me there is a close relation between it and the scheme of invalidity and sickness insurance that has been set forth so ably by Professor Henderson.

I rise chiefly for the purpose of asking him whether the proposed law contemplates the consideration of the relation that the different dispensaries in large cities bear to the insurance problem. The importance of it is very evident to those of us who have anything to do with such work in Chicago, for it constitutes an immense burden for the medical profession. And, furthermore, we are not handling it in anything like a scientific way. We are not managing these dispensaries in the best way, either for the profession or the public. There is too much jealousy and rivalry among medical men as to who shall do this work for nothing, and, sometimes, an almost unseemly scramble takes place for different positions on the dispensary staff. It may not have been contemplated in the subject under consideration to-night, but I can not help touching on this question, as the abuse of these different dispensaries and clinics is only too well known among medical men.

I daresay, without exaggeration, that in many of the dispensaries in this city, hundreds, yes, thousands of patients annually, are treated free, who can well afford to pay something. I have had well-to-do patients come to my service at the Illinois Charitable Eye and Ear Infirmary, who were driven there in a brougham by a liveried driver. An institution like that and the medical men connected with it are continually imposed upon, notwithstanding there is an attempt to safeguard us by having a notary at the door who is supposed to require of each patient an affidavit that he is indigent or unable to pay.

We medical men connected with these dispensaries are responsible for this state of affairs to a great extent, and we are the means of helping some of these people to pauperize themselves. We ought to devise some means by which we could know what we are doing and separate the worthy from the unworthy. We are not doing this at present.

In the New York Eye and Ear Infirmary there is an officer from some charitable bureau in attendance every day who takes notice of every patient who comes in. If there is any suspicion that any individual is an impostor he is carefully looked up by the bureau. So far as I know, nothing of that kind is done here, although it should be, and we ought to co-operate with the different charity boards to secure some such system. It seems to me that the relation of the subject to that of industrial insurance is a close one. It is true that a certain evil confronts us in contract practice, yet we are doing even worse than that in many of our dispensaries and clinics. While contract practice is to a certain extent pernicious so far as our professional welfare is concerned, yet we are engaged in something as degrading and demoralizing to the community at large.

I bring up this question of the dispensary evil because it seems to bear a close relation to the subject of the evening.

Professor Henderson (closing the discussion):—Three points have been raised in the discussion, one by Dr. Henrotin, in regard to the variations and the grading of premiums for service. Under the German system, as Dr. Klebs has reminded me, this is provided for. The principle which Dr. Henrotin has stated is a thoroughly sound one, and should be regarded.

With reference to the question suggested by Dr. Wilder, there are three elements to analyze. One is the criminal element. Some of the people he describes ought to be passed over for perjury to the criminal arm of the law. Second, there is a charity aspect to it; and I hope the medical profession will co-operate with the Bureau of Charities and have a certain per cent. of these cases investigated, so that those who can afford to pay will do so. In the third place, we have the insurance element, which will be provided for partly under the system of accident insurance, and partly by sickness insurance. The working men will pay their contributions into the fund, and, out of this, the doctors will get their share.

Dr. Harris' suggestions go right down into the roots of the system he referred to, and I trust that that phase of the subject will be dealt with in a vigorous way. In my previous remarks, I said that sickness and invalidity insurance, old-age pensions, are matters which will take greater time to settle. The law should be modified as soon as possible to meet the deplorable conditions which Dr. Harris has described with the accuracy of an expert; and some form of the compensation law would meet the difficulties he mentions.

CLARK COUNTY.

The Clark County Medical Society met in Dr. Bradley's office at 2 p. m. Members present, Bradley, Duncan, Burnsides, Rowland, P. P. Haslit, Ryerson, Pearce and L. J. Weir. A fee bill was unanimously adopted, which is thought to be practical for every day work for every doctor in the country. A committee was appointed, consisting of Drs. Burnsides, P. P. Haslit and John Weir, to present a copy to every legally qualified physician in the county and ask and insist that he sign it. The committee was instructed to have the fee bill and names printed in proper form to hang up in our offices.

Dr. Duncan reported in an interesting manner the American Medical Association meeting at Boston. About 6,000 physicians were there. He considered the expenses of the trip well repaid by what he heard and saw, but that the papers read in the Clark County Medical Society were about as good as papers heard there. The courtesy extended was a surprise to him. Everyone was courteous.

L. J. Weir reported the state society meeting, dwelling first upon the purposes of medical organization, scientific advancement, business interests and the benefit to the public by the societies advancing and disseminating proper information on medical subjects, then stated the general plan of organization in the United States and, in detail, the work of the Illinois State Medical Society. Adjourned.

L. J. Weir, *Secretary.*

DE KALB COUNTY.

The DeKalb Medical Society met May 4, 1906, at DeKalb in the Elks' Club rooms. The secretary's report showed that he had collected prior to the meeting, $64.00 and had expended $36.13, having a balance of $27.87 in treasury. He collected $60.00 at the meeting, making a total of $88.87 in his hands. Eight members on the roll were out of the county, of these J. B. Ludwig of Lemont withdrew to join the Cook County Society. Dr. Deleveyne of Belvidere wished to retain his social membership in the society but had paid his state dues in Boone county.

Of the resident physicians of the county as reported to the Councilor of the District the following were reports for correction: Thos. Owings, removed from Maple Park to Hinckley; E. P. Brewer, of Shabbona, has removed; M. C. Mann, of Lee, has retired; Chas. Winnie, of Sandwich, retired; V. Vermilye, of Sandwich, retired; Dr. Mortenson, of De Kalb, removed. There were eighteen officers and members present. The following were elected to membership: J. L. Church, of De Kalb; J. D. Trubauer, of De Kalb; A. C. Kestler, of Courtland. They signed the constitution.

Officers for the ensuing year were elected as follows: Dr. Rodgley, of Malta, President; Dr. Hill, of Genoa, Vice-President; Dr. Mordoff, of Genoa, Secretary; Dr. Brown, of Sycamore, delegate to state meeting; Dr. George Nesbitt, of Sycamore, alternate to state meeting; Drs. Austin, of Genoa, Deleveyne, of Belvidere, John B. Nesbitt ,of Sycamore, were elected censors.

Dr. Brown spoke of the necessity of the profession belonging to county societies. Dr. Murphy asked that the delegate be instructed in relation to medical defense.

Dr. Trumbauer moved that this society send a vote of appreciation for the stand taken relative to frauds and quackery in medical advertisements by *Colliers, Ladies' Home Journal, McClure's, Everybody's* and the *Chicago Tribune.* Seconded by Dr. Anderson and carried.

Dr. Murphy moved that the secretary report the proceedings of the meeting to the ILLINOIS MEDICAL JOURNAL for publication. Seconded and carried.

It was moved, seconded and carried that the chair appoint a committee of three, whose duty should be to secure the writing of papers for the next meeting. The chair appointed Drs. Murphy, Austin and Riley. On motion of Dr. Barton the meeting adjourned.

C. H. MORDOFF, *Secretary.*

FULTON COUNTY.

The thirty-fourth meeting of the Fulton County Medical Society met in the parlors of the Churchill House in Canton, July 3, and was called to order by Vice-President Chapin at 1:30 p. m. The minutes of the thirty-third meeting were read and approved.

The following members were present: Drs. Scholes, Sutton, Shallenberger, Coleman, Oren, Harrison, Regan, Chapin and Ray.

Ex-President Scholes was called to the chair while the acting president presented a paper on "The Non-operative Treatment of Appendicitis." Dr. Oren presented a report on the state meeting at Springfield, May 15, 16 and 17, which was ordered filed with the secretary.

The program committee reported the following, which was adopted subject to the approval of the president. Program for the October meeting: Paper by Dr. W. E. Shallenberger; Diarrhea of Children, Dr. F. M. Harrison; Eye Strain, Its Relation to the General Practitioner, Dr. E. W. Regan.

Notice was given by Dr. Coleman that the following amendment to the by-laws would be presented at the October meeting for adoption: *Resolved:* That Article IV be changed to read: The initiation fee shall be $2.50 which shall cover the first year's dues.

The annual dues shall be $2.50, which shall include membership dues in the Illinois State Medical Society and one year's subscription to the Illinois Medical Journal.

The secretary was instructed to canvass the county and secure as many members to the state society as possible.

D. S. RAY, *Secretary.*

GALLATIN COUNTY.

The Gallatin County Medical Society met in regular session in Masonic Hall, Shawneetown, June 13, 1906, at 2 p. m. All officers and a fair attendance of members present. The visitors were Drs. J. L. Wiggins, president of the Southern Illinois Medical Association and C. W. Lillie, chairman of the Medical Section of the State Society, both of East St. Louis. Dr. W. H. Riley read a very interesting paper on "Summer Diarrhea in Children." It was well written and was quite appropriate at this time of the year. There was much interest manifested in the discussion of the paper. Dr. J. L. Wiggins read a paper, entitled "A Study of Abdominal Pain Relative to Diagnosis and Treatment." The doctor gave, as well as time would permit, the differential diagnosis of the numerous pathological conditions of the abdomen by means of pain. The paper was scientific and practical and was much appreciated by our society.

Dr. Lillie read a paper on "Duties and Obligations Relating to Tuberculosis." He advocated the instruction of the laity by means of lectures by the profession and the general distribution of literature on the methods of preventing the spread of this disease. The paper contained much valuable information regarding our duties as medical men to our patients and the public at large and was highly commended by all who heard it. We hope to have these able brethren of the profession with us often.

The following resolutions were adopted by the society and ordered sent to the ILLINOIS MEDICAL JOURNAL for publication:

WHEREAS, The medical profession is largely responsible for the growth and financial welfare of the life insurance companies, both fraternal and old line, doing

business in this and other counties and some of the old line companies have reduced the fees for examination and others are likely to follow; therefore, be it

Resolved, By the Gallatin County Medical Society, that the said reduction is an injustice to the examining physician in requiring him to do service, the pay for which is inadequate to the service rendered; and be it further

Resolved, That the Gallatin County Medical Society condemns the action of said companies and urges the necessity of maintaining the fees formerly paid by these companies; and, be it further

Resolved, That each member of this society pledge himself not to make an examination for any life insurance company at the proposed reduced rate; and, be it further

Resolved, That each and every member of the Gallatin County Medical Society should charge a fee of not less than three dollars ($3.00) for each examination made for any fraternal life insurance company requiring urinary analysis and two dollars ($2.00) when analysis is not required and not less than five dollars ($5.00) for each and every examination made where urinary analysis is required for any other life insurance company.

J. W. BOWLING, *Secretary.*

GRUNDY COUNTY.

The Grundy County Medical Association was entertained at an elaborate banquet, prepared by the wives of the Morris physicians, at the G. A. R. hall Friday night, May 11. After the supper officers for the coming year were elected as follows: President, Dr. Walsh; vice-president, Dr. Brinkerhoff, Minooka; secretary and treasurer, Dr. H. M. Ferguson.

Following this Dr. Walls, of Chicago, gave an address on Infant Feeding. This was supplemented by statistics furnished by Dr. Baum, of Chicago, in which he showed that the death rate among children was directly traceable to impure cow's milk.

Thirty-four physicians were present and enjoyed the excellent supper by the ladies, Mrs. Backus, of Joliet, arranging the menu and service. The Misses Mamie Nelson, Ella Nelson, Abbie Wilson and Louise Palmer assisted at the tables.

The decorations were pinks and apple blossoms and gave a pleasing aspect to the surroundings.

The entire affair passed off pleasantly and speaks well for the hospitality and entertaining qualities of the Grundy County Medical Association.

H. M. FERGUSON, *Secretary.*

HANCOCK COUNTY.

The Hancock County Medical Society held its last general meeting at Elvaston, July 2, 1906. The meeting was called to order by S. M. Parr, the president, in the Methodist Church at 1 o'clock. The minutes of the last meeting were read, showing the following officers elected at the last meeting, April 2, 1906:

President, S. M. Parr, Fountain Green; vice-president, R. B. Roberts, Augusta; treasurer, C. L. Lewis, Carthage; secretary, W. M. Blender, Carthage; delegate and censor, C. A. Runyon, Elvaston.

The following program was rendered: Address, by O. B. Will, of Peoria. Dr. Will spoke of the last meeting of the state society, also of the work of councilors, and of the benefit of more thorough organization in regard to protection in malpractice suits. He urged every member in good standing to be very prompt in paying dues.

A paper on Six Weeks' Experience in Peritoneal Infections, reporting four cases with complete recovery, was read by Dr. C. E. Ruth, Keokuk, Ia. It was discussed by Drs. Rankin and Runyon.

A paper on Common Naso-Pharyngeal Obstruction and Some of Their Most Important Sequelæ was discussed by Drs. Sisson and Lopsley.

A report of a clinical case, by Dr. W. M. Rankin, Bosco, was discussed by Dr. Fuller.

Dr. Florence A. Howard was elected to membership. The applications of Drs. Faith, Humphrey, Sherwood, Miller, Casburn were referred to the Board of Censors. The society tendered a vote of thanks to Dr. and Mrs. C. A. Rojnon, who entertained the society at dinner at their home. The society tendered a vote of thanks to the visiting members.

Members present were Drs. Callahon, Pow, Rankin, Runyon, Frayier, Taylor, Githens, Cooper, Bleuler; visitors, Drs. O. B. Will, C. E. Ruth, E. O. Sisson, R. M. Lopsley, L. M. Fuller, Blond, E. M. Hansen, Saline. The next meeting place is Augusta, on October 2, 1906. W. M. BLENDER, *Secretary.*

PEORIA COUNTY.

PEORIA CITY MEDICAL SOCIETY.

The last meeting of the Peoria City Medical Society was held in the rooms in the Observatory Building, Tuesday evening, June 18, 1906. The evening was to have been devoted to reports from the American Medical Association at Boston and the meeting of the Illinois State Medical Society at Springfield, but owing to the death of Dr. Emerson M. Sutton, one of our most prominent members, the society adjourned, after appropriate action regarding his death had been taken and arrangements made for attending the funeral in a body.

Dr. Sutton had for a long series of years been one of the most prominent members of this society and has frequently appeared before them in the discussion of subjects of great interest to the profession generally. He came to Peoria from Canton, where his father is, at the present time, a well known physician. For several years after receiving his diploma, he practiced with his father, coming to Peoria in 1892, where he soon built up a large surgical practice.

At this meeting a committee of three, consisting of Drs. C. H. Brobst, M. S. Marcy and L. A. McFadden, were appointed to draw up resolutions on his death. The following were adopted by the Peoria City Medical Society and ordered spread on the books.

"Again we are reminded of the uncertainty of life in being called to mourn the sudden death of our beloved brother and co-worker, Dr. Emerson M. Sutton.

"Words are inadequate to express the deep sorrow felt, not only by his brother physicians, but by every citizen of Peoria.

"No man in our city stood higher in his profession, no one was more respected by all classes, nor had a warmer heart for his fellow man than Dr. Sutton.

"Realizing as we do, that while death was the result of his own fearless hand, our sympathies are the greater, since his reason was overthrown for the moment, caused by the excessive amount of work done during the past few years in his attempt to relieve suffering humanity. Therefore, be it

"*Resolved*, by the Peoria City Medical Society, That we extend to his loving wife, little children, father and brother, all of whom he loved most tenderly, our heart-broken sympathies, and commend them to Him who cares for the sorrowing and bereaved as no mortal can.

"*Resolved*, That we hold his memory sacred, and ever honor and respect the name of the man who died at his post of duty, working beyond his powers of endurance for suffering mankind.

"*Resolved*, That we firmly believe him to be a martyr to his chosen profession, and that he has gone to receive a martyr's reward.

"Let tears of sorrow fall like the dew of night
That glistens in the morning sun.
His soul has now found rest in God's purest light;
His work on earth is done.

"Committee." { "C. H. BROBST, M.D.
"M. S. MARCY, M. D.
"L. A. MCFADDEN, M.D.

FREDRICK E. SIDLEY, *Secretary.*

RANDOLPH COUNTY.

The quarterly meeting of the Randolph County Medical Society met at Evansville, July 10, at 10:45 a. m., at Dr. F. J. Meyer's office. The chairman, Dr. C. G. Smith, called the meeting to order. The following members were present: Drs. H. C. Adderly, C. G. Smith, A. D. Steele. Minutes of the last meeting were read and approved. The regular rules were dispensed with, a board of censors was appointed and Dr. F. J. Meyer, an applicant for membership, was duly elected.

Dr. F. J. Meyer had an interesting case, the patient being present. A married lady, 26 years old, mother of two children, the youngest being a child four months old. Two months after her confinement, she felt a pain in the right side in region of her liver. On standing the pain was below, about the right ovary. By palpating one could feel a hard mass, the size could not be definitely determined, as examination therefor caused her much pain on pressure and she became nauseated. The bowels were constipated. The diagnosis of adhesions involving the right ovary due to the inflammatory process that had existed so long. She was advised to have an early laparotomy performed.

Dr. H. C. Adderly presented a very interesting paper, reporting a patient who had appendicitis, and was operated on. The appendix vermiformis was about ten times its normal size. Adhesions had formed all around. On opening the appendix, it contained seven hard substances, ranging in size from a pea to a hickory nut. Operation was successful, patient was out in three weeks.

Dr. C. G. Smith reported a case to which he had been called, in consultation with Dr. Brandts. The patient was 30 years old, the mother of three children. She was eight months pregnant. The first symptom the patient had was severe pain in her head, which became intense; vision and mind became clouded, and complete coma set in. The comatose condition subsided after thirty-six hours, sight not improved, no urinalysis report. A diagnosis of uremic poisoning was made.

Dr. H. C. Adderly was selected by the chairman to represent the society on legal defense. Dr. F. J. Meyer made a motion that the Randolph County Medical Society be affiliated with the State Medical Society and that no member of this society make an examination for any of the old line insurance companies for less than $5. Motion was adopted. Next quarterly meeting will be held in Chester.

DR. C. G. SMITH, *Chairman.*
DR. A. D. STEELE, *Secretary.*

ROCK ISLAND COUNTY.

The regular bi-monthly meeting of the Rock Island County Medical Society was held Tuesday, June 12, 1906, at the Manufacturer's Hotel, Moline. Preceding the meeting, a supper was served in the dining room.

At 8:30 the meeting was called to order by the president, Dr. F. H. Gardner. The minutes of the last meeting were read and approved. The program for the evening consisted in a paper entitled, Pernicious Vomiting in Pregnancy, by Dr. E. M. Minnick, of Moline. The Doctor's paper was well prepared and proved very interesting and included autopsy findings and reports of several interesting cases. The discussion was participated in by nearly all the members present.

The applications of Drs. C. A. Paterson, M. J. O'Hern, M. S. Dondonville, and A. H. Foster, which were presented at the last meeting, were again presented and a ballot taken on each separately, and all were elected to membership. The application of C. C. Sloan was read and placed on file.

Resolutions adopted by the Pike County Medical Society, deprecating the proposed reduction in price for insurance examinations in Old Line Companies and urging the profession of this state to hold to the standard prices, were read by the secretary. It was moved and seconded that we concur in the resolutions. The motion was carried.

It was moved and seconded that the resolutions be embodied in the minutes and officially reported. Carried.

A letter from the American Medical Association, asking for help for San Francisco physicians, who lost all their property in the recent earthquake, was read by the secretary. After considerable discussion, the Society decided to send to the American Medical Association a draft for $25.00 for the California Benefit Fund. The meeting then adjourned. RALPH DART, *Secretary.*

SANGAMON COUNTY.

The Sangamon County Medical Society met in the Lincoln Library, June 11. The meeting was called to order by Dr. Langdon, in the absence of the president. Minutes of the previous meeting were read and approved. The applications of Dr. Priest, of Williamsville, and Dr. Blankmeyer, of Springfield, were read and referred to the board of censors.

Dr. Kreider brought to the attention of the society the facts regarding the long and efficient service of a member of the State Medical Society and suggested that some fitting acknowledgement of his services be made by the profession of the state. He suggested that a banquet in his honor would be appropriate and that to make it the occasion of the annual meeting of this society would be opportune. A motion embodying the suggestions prevailed and the chair appointed the following committee to take charge of the matter: Drs. Kreider, A. L. Brittin and Patton.

As announced on the program, each member was invited to report an interesting case. Dr. Colby reported a case of mitral and aortic insufficiency, with roughening of the aortic valves. The interesting feature of the case was the disparity between the general symptoms and the physical findings of the heart. The patient has so far recovered as to be about and has been discharged from the hospital. Dr. Griffith reported a case of hourglass contraction of the uterus in a case of labor, retaining the placenta. Dr. Patton reported a case of traumatic edema, probably neurotic in character. Dr. Dixon related his experience, recently, as consultant in a case of abortion. He denounced the use of the curette and lamented the indiscretion of the consulting physician in the case.

Dr. A. L. Brittin reported a case of forceps delivery in a country home under unfavorable conditions, where uneventful recovery followed and surprisingly good union of the repaired perineum was obtained. Dr. Monroe reported an unusual case of vomiting of pregnancy, which had persisted in spite of all the usual methods for relieving that condition; but on evacuating the uterus the patient was able to retain food within twenty-four hours. The doctor stated that in such cases the mortality was more than 50 per cent. Dr. Patton observed that such cases naturally fell into two classes: those of neurotic character and those depending on a physical cause. In the former class the vomiting naturally ceases after the uterus has been evacuated, while in the second the cause is extrauterine and often continues to operate, causing death by toxemia or exhaustion.

Dr. Metz reported an interesting case which clinically appeared to be one of gallstones; but on operation the gall bladder contained neither calculi nor bile. The liver was enlarged and bled very easily. The wound was closed and the patient treated symptomatically, making a good recovery. The inference drawn by Dr. Metz was that the patient was suffering from hepatitis. Dr. Langdon concurred in this opinion and said that it was a common condition in the south, especially in malarious districts.

Owing to the lateness of the hour it was not possible for all present to present cases. It was generally conceded that the innovation of reporting cases, instead of having a set paper, was decidedly successful. The meeting closed in order.

R. D. BERRY, *President.*

C. R. SPICER, *Secretary-Treasurer.*

ST. CLAIR COUNTY.

The St. Clair County Medical Society met in regular session at the St. Clair Country Club, July 5, 1906, with the following officers and members present: Hugo Wangelin, president; J. W. Rendleman, vice-president; J. W. Twitchell, corresponding secretary; C. W. Lillie, recording secretary; A. E. Hansing, treasurer; A. B. Gunn, W. E. Wiatt, J. G. Massie, censors; and members, E. L. Wagoner, J. Sloey, F. W. Kerchner, Geo. Hilgard, J. A. Grimes, Jacob Butler, R. L. Campbell, Carroll Smith, Walter Wilhelmj, H. C. Fairbrother, E. M. Irwin, H. G. Hertel, C. H. Starkel, J. W. Rendleman, J. L. Wiggins, W. C. Spannagel, G. C. Adams, W. S. Wiatt, R. A. Twitchell, C. A. W. Zimmerman, E. H. Lane. Guests of the society were Drs. J. A. Egan, Springfield, secretary of the State Board of Health; F. L. Evans, M. M. Glass, J. I. Higgs, A. B. McQuillan, J. C. Caldwell, C. S. Skaggs, East St. Louis; L. T. Miller, Caseyville; F. C. Kiesling, Lebanon; F. M. Trigg, and C. L. Moeller, East St. Louis. The minutes of the April meeting were read and approved.

Dr. J. A. Egan reported a case showing the difficulty of making a diagnosis in certain cases of yellow fever; and emphasizing the importance of extreme care in time of epidemics. The case was one occurring on a train in Kentucky. A young man had come from some place in the south during the recent epidemic, and was taken sick some distance south of the Illinois state line, and, as this state was then quarantined against the south, Dr. Egan was on the lookout for suspected cases. He saw the sick man, but could not decide positively as to the nature of the disease, there being an absence of nearly all of the so-called "classical" signs. At Cairo, a member of the quarantine staff was called in, and still a diagnosis of yellow fever could not be established, and the young man was allowed to proceed to his destination; although the car in which he had traveled was vacated and fumigated. The man died of yellow fever three days later in Chicago.

Dr. Egan gave a very interesting and instructive talk on The Medical Practice Act and Its Enforcement. According to Dr. Egan, our medical law is about the best in the country. It is his belief, however, that the board of health should be separated from the examining and licensing board; or that there should be two boards, instead of one. The question of advertising by doctors was discussed by the doctor, and he showed very clearly that the law does not prohibit this, and that it does not, nor ever will constitute a sufficient ground for the revocation of license.

In discussion, Dr. Fairbrother said that we are under obligations to the state board for many things, but especially to Dr. Egan for his untiring efforts in behalf of a higher medical education; for maintaining the dignity of the medical profession; for eliminating many of the disgraces attaching to it thirty-five years ago, when Dr. Miller and himself first began practice. This dignified medical society meeting to-day is the result of the work of the state board of health.

Dr. Lillie moved that a vote of thanks be tendered Dr. Egan for his attendance and interesting discussion. A rising vote showed the high appreciation of the society. The vote was unanimous.

A committee presented the following resolution, which was adopted:

WHEREAS, in the death of Dr. George Loelkes, the St. Clair County Medical Society has suffered the loss of a faithful member.

Resolved, That we, as members of the St. Clair County Medical Society, desire to put on record our appreciation of his character and attainments. Dr. George Loelkes, though one of our recent members, showed by his attendance and activity in what esteem he held the society; and that he was ever alert to advance the cause of the profession. By his integrity, fearless courage, and honesty of purpose, he set an example for the members to emulate.

Resolved, That we tender our sympathy to the family of the late Dr. George Loelkes, and that a copy of these resolutions be entered on the records of the society. E. P. Raab, J. W. Twitchell, G. E. Hilgard, committee.

Dr. J. W. Twitchell presented the following resolution, which was adopted:

Resolved, That the St. Clair County Medical Society deprecate the reduction of fees for examinations for insurance companies; and recommends that the standard

fee for the ordinary examination be five dollars, and that ten dollars be the fee for examinations requiring the use of the microscope.

The president appointed Dr. F. E. Auten, of Bellevue, as a member of the committee on Medical Defense of the State Society. The treasurer reported $110.02 in the treasury. The Board of Censors reported favorably on the applications of Drs. C. S. Skaggs, F. L. Evans, M. M. Glass, Otto W. Knewitz, H. M. Voris, John I. Higgs, A. B. McQuillan, J. L. Linder, and J. C. Caldwell, of East St. Louis; F. C. Kiesling, Lebanon; L. T. Miller, Caseyville. On motion, the report of the Board of Censors was accepted and the candidates elected by acclamation.

The society adjourned, and the members joined the ladies in the auditorium, where they were entertained with a musical program, arranged by Dr. Hansing. This consisted of a piano solo, by Mrs. J. W. Paton; song, by Mrs. J. L. Wiggins; song, by Mrs. Byron Virgin; recitation, by Mrs. W. S. Wiatt; concluding with a violin solo, by Dr. Hansing, with piano accompaniment by Mrs. Paton. Every number on this program was well rendered and elicited the highest praise. Dr. Lillie thanked the ladies for their assistance, and expressed a hope that they might again participate in entertaining the members and friends of the society. Supper was then served under the trees in the park; and thus ended a day of pleasure and profit to all participants. C. W. LILLIE, *Recording Secretary.*

BRAINERD DISTRICT.

The Brainerd District Medical Society held its thirtieth annual meeting in the Logan County Courthouse, Lincoln, Ill., April 13, 1906. The secretary's annual report shows that fifteen members have been added to the society during the year, making a total of ninety-five members in good standing. The treasurer's annual report shows a balance in the treasury of $116.23. The following officers were elected for the ensuing year:

President, W. E. Guthrie, Bloomington; first vice-president, C. C. Montgomery, Lincoln; second vice-president, S. E. Munson, Springfield; third vice-president, A. G. Servoss, Havana; secretary, H. S. Oyler, Lincoln; treasurer, C. C. Reed, Lincoln. The board of censors are as follows: H. M. Van Hook, Mt. Pulaski (1907); W. A. Mudd, Athens (1908); C. M. Noble, Bloomington (1909).

The retiring president, Dr. P. H. Oyler, of Mt. Pulaski, delivered the following address:

The young doctor of to-day can not realize, as we older ones do, the wonderful progress that has been made in the past thirty-two years in all that pertains to our profession. Then no license was required and diplomas were a necessary requisite only a few years prior. Many of our older physicians were graduates, and it was through their influence that the laws regulating the practice of medicine were enacted. The physician who kept pace with and entered into the progress of medicine and surgery grew ripe in knowledge, and in turn taught the younger lads their first lessons, who, if thoughtful, continued where their tutors left off, and by degrees brought the profession up to a higher plane than they found it. It was a glorious thought that after you had labored long and hard you were to be honored and called into counsel by younger medical men.

Our armamentarium was, in the early days of my practice, much less elaborate and helpful than now. To-day you can carry your hypodermic syringe and accurately-dosed tablets ready for instantaneous use. Thirty-two years ago the former had not been invented and the latter were home-made and inaccurate. I had practiced twelve years before I became acquainted with the gelatin capsule, and scarcely a greater benefaction to ailing mortals has been invented than the simple gelatin capsule. Whenever I fill one, visions of rhubarb, jalap, calomel and quinin mixed in molasses, preserves or slippery elm, disgust me and take away all longing to be a boy again.

If the tools with which we do our work have undergone so complete a change, how much more noticeable has been the progress in an educational way! The

young graduate of to-day, even many of those who fail to pass the state board examination, can console themselves with the reflection that they know more than the professors who taught the older physicians. But let us not forget that the active old physician of to-day, who lived, moved and kept pace with all this progress, is a well-qualified practitioner and has the years of rich experience to aid him in selecting the wheat from the chaff.

It was a common occurrence in those days to meet with doctors who had taken only one course of lectures. I knew one who rather boasted that he had heard not more than half a dozen lectures and did not begin to practice medicine until seven or eight years later, when he had lost all his property, yet he had the confidence of those who received his services. Such men, however, were not the fathers of medical associations, for they have always stood for better and more thorough education and have honestly wrought hard to safeguard the lives and health of our people by placing restrictions upon the practice of medicine. So little being required to become a doctor at that time, and so many desiring to shirk honest manual labor and find an easier avenue of entrance into professional life (if such you may call it), with its supposed emoluments, a quicker and easier education was in demand, and, responding to this, medical colleges with shorter and cheaper curricula rapidly developed. Charlatans and quacks had themselves incorporated as medical colleges and actually sold diplomas. The fathers of our association, nearly all of whom have passed to their reward, began a vigorous protest against this sin against humanity and intelligence. While a great work has been done in enacting state laws, much is yet to be done before we occupy our proper place.

If I am not mistaken, Illinois was among the first to take steps to raise the medical standard. Other states were having experiences similar to ours, and, like ours, their medical associations were protesting for a higher and better education. To conform to these new laws, colleges began to increase the requirements for matriculation, lengthen the terms and increase the number of years of study required for graduation, so that now nearly all colleges require a high school preliminary education and four years' course in medicine. I think we can justly claim that the organization of medical men has been instrumental in bringing about this higher standard of medicine. The education of the laity, however, in medical matters relating to the state, state medicine, as it is called, has not advanced with the higher attainments of the medical men. They are still easily humbugged in their selection of a physician and are more apt to employ a boasting quack doctor than a studious, conscientious physician. In our code of ethics we pledge ourselves, as good citizens, to be vigilant for the welfare of the community, to bear our part in sustaining its institutions and burdens, to be ever ready to give counsel in matters pertaining to our profession, to enlighten the people as to the protection of health and prevention of epidemics. When pestilence prevails it is our duty to face the danger even at the peril of our own lives. As evidence of the faithful performance of these obligations, we have given the people a more intelligent profession, we have lowered the mortality of all diseases not necessarily fatal, we have been instrumental in establishing hospitals for the indigent sick, hospitals for the treatment and care of the insane, quarantine and sanitary laws, compulsory vaccination when threatened with a smallpox epidemic; we have placed restrictions on the sale of poisons and narcotic drugs, and have secured the passage of many other laws all looking to the protection of the health of the public.

In conclusion, let us blot out of our history all the discord that has arisen among true physicians over matters of policy in administering the affairs of our association. Let us forget everything in the past, except the good we have done humanity, and not only throw our doors wide open to all honorable physicians, but go out in the highways and byways and entreat them to come with us and take heart for renewed effort in this era of progressive medicine, which is beneficent to our commonwealth, of material gain to ourselves and to the medical fraternity.

NEWS OF THE STATE

Dr. Young, of Breckenridge, has located at Hamilton.

Dr. Otto J. Stein, Chicago, has returned from Germany.

Dr. Charles S. Elder, Chenoa, fell June 28 and fractured a rib.

Dr. Charles C. Gordon, Highland, is seriously ill with typhoid.

Dr. and Mrs. Bernard Fantus are spending the summer in Europe.

Dr. and Mrs. G. W. Fiegen, of Nauvoo, are victims of an automobile accident.

Dr. Robert Emery, of Peoria, accused of manslaughter, was acquitted, June 8.

Dr. Vachel T. Lindsay and family, Springfield, sailed for Europe, June 23.

Dr. John Guerin, Chicago, has been appointed a member of the Board of Education.

Dr. C. W. Lillie has been elected chief of staff of the Henrietta Hospital, East St. Louis.

Dr. R. F. Lischer has succeeded to the practice of Dr. J. O. DeCourey at Mascoutah.

Dr. and Mrs. Edward C. Streeter are now in Japan and will return to Chicago late in August.

Dr. William M. Blender, of Carthage, has recently established a private hospital in that place.

Dr. Antonio Lagorio, Chicago, has been made a member of the Chicago Public Library Board.

Dr. and Mrs. Fenton B. Turck and Dr. Hugh T. Patrick, Chicago, have returned from Europe.

Dr. Julia D. Merrill, Chicago, was rescued after being lost for twenty-four hours in the Adirondacks.

Dr. W. M. Avery, Compton, has been appointed physician for the Paw Paw District of Lee County.

Prof. Alexis Carroll and C. C. Guthrie, of the medical department of Chicago University, have resigned.

Dr. Don Deal, a recent graduate of the Northwestern University Medical School, will locate in Springfield.

Dr. John MacKellar, formerly of Chicago, was seriously injured in an automobile accident at Manhattan, Nevada.

Dr. Lester B. Cavins, Mattoon, has been appointed demonstrator of clinical medicine in Baltimore Medical College.

Dr. G. T. Nelson, Morris, injured the muscles and tendons of the left leg, in a fall which he suffered June 12.

Dr. James H. Stowell, Chicago, has recently been made dean of the Dearborn Medical College.

Dr. Eugene Cohn, St. Jacob, has been appointed assistant physician at the Illinois Eastern Hospital for the Insane.

Dr. Alfred Nash, Joliet, celebrated the fiftieth anniversary of his entrance into the practice of medicine, June 20.

Dr. R. L. Casburn, who sold his residence and practice to Dr. W. M. Blender, will locate in Rossville, N. M., September 1.

In an ordinance recently passed in Monmouth, the promiscuous scattering of samples of proprietary medicines is forbidden.

Dr. J. C. Harmon, Rantoul, who has been ill for several weeks, was taken to the Julia F. Burnham Hospital, Champaign, June 23.

Dr. Casey Wood was granted the ad eundem degrees of M.D. and C.M. by McGill University, Canada, for "services to medical science."

Dr. Leslie Casburn has located at Bentley, having bought the practice of Dr. G. E. French. Dr. French has removed to San Francisco, Cal.

Dr. C. F. Grimmer, who has been located in Topeka for four years, will sail September 1 for Europe for a year's special study in Vienna and Berlin.

Drs. Harold N. Moyer and Frank Allport were given the degree of LL.D. at the annual commencement of Notre Dame (Ind.) University, June 14.

Dr. Emil Lofgren, health officer of Rockford, has investigated the cases of alleged small-pox at Rockton, and states that the disease is not smallpox.

Dr. Thomas J. Robeson, of Chicago, has been commissioned lieutenant colonel and assistant surgeon general I. N. G., and assigned to the third brigade.

Dr. James L. Greene, the new superintendent of the Illinois Eastern Hospital for the Insane, arrived at Kankakee, July 21, and assumed charge July 23.

Drs. H. John Stewart and Wellington T. Stewart, Chicago, wish to announce that they have severed all connection with the Finsen Light Institute of America.

Friends of Dr. Ira Frank, 4714 Grand Boulevard, Chicago, will be glad to learn that he is slowly recovering from the injuries he received in an automobile accident.

Dr. Svenning Dahl has gone to Europe, and during his absence Dr. Karl Doepfner will occupy his position as chief surgeon to the Norwegian Deaconess Home and Hospital.

Dr. John W. Hairgrove was elected president and Dr. Emma Grace Dewey, secretary of the Medical Fraternity of Jacksonville, at a meeting of the society held recently.

The commencement exercises of Northwestern University were held June 21, more than 500 degrees being conferred. Ten of the medical graduates were awarded special honors.

Dr. J. C. Westervelt, inspector of the State Board of Health, has been sent to investigate a number of cases of alleged smallpox reported from Hurricane Township, Fayette County.

Dr. Daniel A. K. Steele, president of the College of Physicians and Surgeons, was given the degree of LL.D. at the commencement exercises of the University of Illinois, Champaign, June 13.

Dr. Vaclav H. Podstata, recently superintendent of the Cook County Institutions at Dunning, has assumed his new duties as superintendent of the Illinois Northern Hospital for the Insane, at Elgin.

The Illinois Steel Company, which has maintained a hospital in its plant at South Chicago for a long time without complying with the laws regarding licensure of hospitals, has applied for and obtained a license.

At the annual meeting of the directors of the Chicago Clinical School, Dr. W. T. Eckley was elected president, Dr. George F. Hawley, vice-president, Dr. Arthur M. Corwin, secretary and Dr. John S. Nagel treasurer.

At the annual meeting of the Cottage Hospital Association, Peoria, June 26, resolutions were unanimously adopted regarding the untimely death of Dr. Emerson M. Sutton, a valued member of the hospital staff.

At the annual meeting of the Physicians' Club of Chicago, June 26, Dr. William T. Belfield was elected chairman and Drs. Charles H. Mix and Arthur M. Corwin were re-elected secretary and treasurer respectively.

Dr. Julius F. Wengiersky has been appointed assistant physician at the Illinois Eastern Hospital for the Insane, and Dr. Francis J. Sullivan has been appointed assistant at the Illinois Central Hospital for the Insane, Jacksonville.

Dr. George J. Schaller, aged 47, 518 Fullerton Avenue, Chicago, attempted to kill himself in his library recently by cutting his throat and inhaling gas. Despondency is said to be the cause for his attempt on his life.

Dr. Nicholas B. Delamater, Chicago, aged 60 years, was knocked down by an automobile on the evening of June 27, but owing to the slow rate of speed at which the machine was moving, the doctor escaped with a few bruises.

The Carbondale Medical Society has elected the following officers: President, Dr. J. A. Kelly; vice-president, Dr. J. G. Harper; secretary, Dr. F. J. Wagner; librarian, Dr. U. G. Anderson; censors, Drs. Jackson, Walker and Day.

The Lincoln Park Sanitarium for sick babies, at the foot of Fullerton Avenue, supported by the Daily News Fresh Air Fund, opened for the season June 25. During the summer of 1905, the sanitarium cared for 15,179 babies and 46,615 children.

The Oak Park Hospital and Training School for Nurses, of the Sisters of Misericorde, has obtained a loan of $100,000 for fifteen years, at 4½ per cent., from the parent organization in Montreal, secured by a mortgage on its property in Oak Park.

The corner stone of the new Oak Park Hospital, at Wisconsin Avenue and Madison Street, was laid July 5. The Rev. Hugh McShane delivered the principal address. The building is expected to be ready for occupancy by the first of next January.

At a meeting of the Bi-County (Iroquois-Ford) Medical Society, June 5, resolutions were unanimously adopted, setting forth the long and honorable career of the late Dr. Daniel L. Jewett, Watseka, first president of the society, and deploring his decease.

The Chicago Medical College has been formally merged with the Northwestern University in a quitclaim deed filed for record. The college has for some time been affiliated with the University and is known as the Northwestern University Medical School.

Five cases of diphtheria in one family are reported in Moline. The father of the children, W. J. Walton, trusted to divine healing and a liberal use of witch hazel to effect a cure. As a result of this neglect, it is feared that three of the children can not recover.

The Peoria Medical Society has filed information in the county court against "Phenomenal" Kraus, the medicine man, charging him with being an itinerant drug vendor and also practicing medicine without a license. It is understood that Kraus will fight the case.

Dr. and Mrs. Frank S. Whitman were given a farewell reception by the employes of the Northern Illinois Hospital for the Insane, Elgin, June 29, at which a cut glass punch bowl and frappé set and a gold watch, suitably inscribed, were presented to Dr. Whitman.

Dr. C. H. Cutter, of Aurora, has been appointed official physician for the employes of the Aurora postoffice. This is a new position created by the government for the purpose of examining all applicants for employment in the postoffice department, before they assume their duties.

The employes of the Cook County institutions, Dunning, presented Dr. V. H. Podstata, the retiring superintendent, with a diamond pin, presenting Mrs. Podstata with a cut glass vase filled with flowers. The presentation speeches were made by President Brundage of the County Board.

Preliminary arrangements have been made for the organization of a city physicians' club in Canton, the object being advancement along professional and social lines and a closer bond between the members of the profession in the city. Plans are also being made for the erection of a hospital.

The Julia F. Burnham Hospital, Champaign, is to be enlarged to nearly double its present capacity. Among the new features will be a two-story isolation ward and a larger operating room on the third floor, while the emergency ward will be located in the basement of the new addition.

A damage suit has been brought against Dr. George Edens, a prominent physician of Danville, following the death of Miss Bessie Harlan at St. Elizabeth's Hospital in that city. The case is causing a great deal of excitement owing to the prominence of the defendant and the peculiar features involved.

Mrs. Alice B. Sheldon, widow of Dr. Willard B. Sheldon, has brought a damage suit of $10,000 against Clarence M. Wooley, president of the American Radiator Company. Dr. Sheldon died after being thrown from a buggy at Lake Geneva, the horse being frightened, it is alleged, by an automobile driven by Wooley.

The National Posters' Association is endeavoring to bring about reforms in the character of matter placed before the public eye. At a recent meeting of the Association held in Chicago it was decided to eliminate all suggestions from advertisements distributed by the Association, that would be in any way hurtful.

A license to practice medicine, which the owner, Dr. Leonard C. Koehler, declares was stolen from him in 1886, was the subject of a suit filed in the Circuit Court recently, by Dr. Koehler against the state board of health. Dr. Koehler asks that the board be enjoined from prosecuting him on the ground that he is practicing without a license.

The Bulletin of the Department of Health of Chicago, quotes from the editorial in the *Journal of the American Medical Association* on the subject of Fourth of July dangers, and speaks of the decrease of tetanus in the past two years. It urges that all Fourth of July wounds, no matter how caused, be kept open to the air until seen by a physician.

The physicians of Waukegan have organized the Waukegan Clinical Society, a branch of the Lake County Medical Society. It is intended that this shall be in line with the state and national organizations on all questions of importance. The officers elected are: President, J. M. G. Carter; vice-president, Dr. J. C. Foley; secretary and treasurer, Dr. C. E. Daniels.

The plans for the George Smith Memorial Addition to St. Luke's Hospital have been completed. The building will be six stories in height, with a frontage of 135 feet on Michigan Avenue. There will be 112 private rooms, a number of which will be arranged in suites, with private baths. The building is designed to afford accommodation for the superior grade of private patients.

Dr. O. C. Willhite, the new superintendent of the Cook County Institutions at Dunning, entered upon his new duties July 16th. Dr. Willhite is 34 years old and is a graduate of Rush Medical College. His last position before coming to Dunning was the superintendency of the Iowa State Hospital for Inebriates, before which he was connected with the Kankakee Insane Asylum for three years.

Charles T. Garrard, superintendent of the Illinois Charitable Eye and Ear Infirmary, emphatically denies the charges of cruelty, mistreatment and neglect of patients which have been brought against the management. It is asserted that these reports were circulated by persons who had refused to be governed by the rules of the infirmary. An investigation among the patients revealed only two minor complaints.

The prosecution and investigation of cocain sellers in Chicago is being vigorously pushed. C. A. Montgomery, a druggist, accused of the illegal sale of cocain and morphin, was fined $100 and costs. J. H. Montgomery, another druggist, accused of a similar offense, was discharged on a technicality. A. Lane claimed that a clerk had sold the drug, and a warrant was issued for the arrest of the clerk. A. C. Brendeke was fined $50 and costs for the illegal sale of cocain.

A physician for the Canton township poor has been employed at a salary of $800 a year. No provision is made in the contract for the

care of patients suffering from smallpox or other contagious diseases. Formerly, the salary of the county physician was about $1,000 per year and these cases were provided for. Dr. Fouser, the present county physician, recently declined to accept such a case, saying that the contract made no provision for the care of these patients.

The Chicago Union Hospital, through its president, has asked the Circuit Court to restrain the building commissioner and the chief of police from interfering with the erection of a new hospital building at Wellington Avenue and Dayton Street. Work on the structure had been ordered stopped by the commissioner of buildings, on the ground that the building was being erected in violation of a city ordinance which forbids a hospital within 400 feet of property used for public school purposes.

On account of the fight for control of the Jenner Medical College, Chicago, thirty-eight graduates who have completed the four years required course and hold their diplomas, have been refused licenses to practice medicine by the Illinois State Board until it is determined who has the right to issue diplomas. The graduates, many of whom obtained their medical education by working in the daytime and hearing lectures at night, are dismayed at the prospect of being delayed perhaps months before they can begin practicing.

Dr. Albert J. Ochsner, 110 Sedgwick Street and Dr. W. D. Goldsmith, 957 North Clark Street, Chicago, were sued for $20,000 in the Superior Court recently by Carl A. Hartmann on the charge that he engaged Dr. Ochsner to perform an operation and that Dr. Goldsmith had been substituted. Mr. Hartmann claims that as a result of the operation, he received an injury which will remain with him through life. Dr. Ochsner denies being called by Hartmann and asserts that after the operation Dr. Goldsmith called him in consultation.

Dr. A. C. Girard, late Assistant Surgeon General, U. S. A., retired as Brigadier General, has located in Chicago, where he is very well known, having been for a number of years on duty at Fort Sheridan. Dr. Girard was chief surgeon of the Second Army Corps during the Spanish war and afterward built and organized the General Hospital at the Presidio of San Francisco. He subsequently went to the Philippines and on his return, after a year's service as Chief Surgeon of the Department of California, was retired from active service. He announces that he will limit his work to consultations in surgical cases.

MARRIAGES.

ERNEST E. DAVIS, M.D., to Miss Frances Ross, both of Avon, June 2.

WILLIAM H. DALEY, M.D., to Miss Rae M. O'Dowd, both of Chicago, June 12.

FRANK POTTS, M.D., Toluca, to Miss Mabelle Thompson, Lacon, June 14.

WILLIAM G. ROSS, M.D., Kempton, to Miss Carrie Hayes, of Joliet, June 16.

DWIGHT E. MORTON, M.D., to Miss Bertha C. Bugg, both of Taylorville, July 5.

ELBERT A. BING, M.D., Browns, to Miss Cora Estes Whitson of Johnsonville, June 27.

HALFORD J. MORLAN, M.D., to Miss Percy Eugene Bohrer, both of Ludlow, June 30.

C. A. W. ZIMMERMAN, M.D., to Miss Cecil Ray Mehan, both of East St. Louis, June 4, 1906.

D. F. MORTON, M.D., Taylorville, to Miss Plowman, of Missouri, formerly of Taylorville.

ALFRED HUGH FOWLER, M.D., Chicago, to Miss Josephine Smith Bates, of Fairbury, June 30.

DEATHS.

THOS. H. BATES, M.D., died in Cook County Hospital, Chicago, May 23, from nephritis, after an illness of five months, aged 68.

SAMUEL M. FRENCH, M.D., Hahnemann Medical College and Hospital, Chicago, 1882, died recently at his home in Chicago, aged 80.

SUISEPPE RONGA, M.D., died at the Presbyterian Hospital in Chicago, from cerebral hemorrhage, June 20, after a short illness, aged 62.

WILLIAM MCAFFEE, M.D., Hahnemann Medical College, Philadelphia, 1861, died from osteosarcoma at his home in Rockford, Ill., July 20.

WILLIAM WALLACE SKINNER, M.D., Rush Medical College, Chicago, 1891, of Peoria, died at the home of his daughter in that city, June 17, aged 71.

ERNEST T. LIND, M.D., Rush Medical College, Chicago, 1895, died at the home of his father in Chicago, July 22, from pneumonia, after an illness of two weeks, aged 34.

THEOPHILUS GAGGNER, M.D., Missouri Medical College, St. Louis, 1880, a member of the American Medical Association, died at his home in Trenton, Ill., June 15, aged 54.

ALBERT F. PERRY, M.D., Meharry Medical College, Weldon University, Nashville, Tenn., 1890, died suddenly July 12, from pulmonary hemorrhage, in his office at Chicago, aged 45.

CHARLES C. GORDON, M.D., Hospital College of Medicine, Louisville, 1894, St. Louis College of Physicians and Surgeons, 1896, of Highland, Ill., died at the home of his father in Pocahontas, Ill., July 11.

EDWARD HOEHN, M.D., University of Zurich, Switzerland, 1853, for many years a practitioner of Columbus, Nebraska, died at the home of his daughter in Danville, Ill., June 29, after a brief illness, aged 76.

JOSEPH FULLER DURANT, M.D., Eclectic Medical Institute, Cincinnati, 1854, for several years alderman of Quincy, Ill., died at his home in that city, June 5, from heart disease, after a short illness, aged 74.

JOHN ADAMS WAKEMAN, M.D., Worthington Medical College, Medical Department of Ohio University, Worthington, Ohio, 1838; Hahnemann Medical College, Philadelphia, 1853; formerly of Centralia, Ill., died at the home of his daughter in Minneapolis, Minn., June 8, aged 91.

SAMUEL RUSH SAYERS, JR., M.D., was found dead in his room at the Gault House, Chicago, May 29, aged 30. The coroner's jury found that

he died from a gunshot wound inflicted with suicidal intent while despondent.

SAMUEL P. BOARDMAN, M.D., University of Wooster, Medical Department, Cleveland, Ohio, 1897; a prominent practitioner of Springfield, Ill., while a sufferer from melancholia, committed suicide by drowning in the Springfield reservoir, June 1.

JOHN W. REILLY, M.D., Bellevue Hospital Medical College, New York City, 1881, at one time a member of the Sangamon County (Ill.) Pension Board, died at his home in Springfield, June 27, from rheumatism of the heart, after a long illness, aged 47.

CHARLES VICTOR STARKE, M.D., University of Upsala, Sweden, 1889; a member of the American Medical Association, for two years a resident of the Argentine Republic, and since 1892 a practitioner of Rockford, Ill., died at his home in that city, June 10, from nephritis, after a protracted illness, aged 53.

JOHN ANDREW HARVEY, M.D., College of Physicians and Surgeons, Keokuk, Iowa, 1875; a veteran of the Civil war; sheriff of Schuyler County, Ill., in 1876; the oldest practicing physician of Rushville, Ill., died at his home in that place July 7, from cerebral hemorrhage, after an illness of four days, aged 71.

DR. ELIJAH FOSTER, one of the oldest practitioners in Southern Illinoies, died at his home in Norris City, July 1. Dr. Foster was born in Claremount County, Ohio, in 1822. He came to Illinois in 1854, locating in Gallatin County, afterward moving to Roland, where he practiced for several years, finally locating in Norris City, where he resided for more than thirty years.

DR. EMERSON M. SUTTON, of Peoria, died in that city, from a pistol ball wound inflicted by his own hand during a period of mental aberration, occasioned by too intense application to professional responsibilities. Of an extremely sensitive and impressionable nature, he assumed to diagnose his own condition as one likely to grow progressively worse, and rather than face the further consequences of such probability he chose to end his anxiety and suffering by taking his own life. For several months Dr. Sutton had complained of intense pain in the head, and more or less deficiency in memory. He had always been a close student and arduous worker, and like many other men of equally brilliant natural powers could not be made to see in season that the strain was becoming too great. There was absolutely no other reason than that just assigned for Dr. Sutton's deplorable act. He enjoyed a large and lucrative practice, and his domestic associations and family ties were exceptionally pleasant and endearing. Likewise his professional relationships were warm and abiding, and his ambitions progressively secure. It was distinctly a case in which the weary mind mistook its own exhaustion as an evidence of degeneration, and rather than suffer pain and decrepitude, pursued the courage of its convictions to the point of self-destruction.

Dr. Emerson Sutton was born in Downer's Grove, DuPage county, Ill., June 5th, 1868. He was the son of Dr. J. E. Sutton, a prominent physician of Canton, Ill., who shortly after his son's birth removed to that city where the latter received his education in the public and high schools,

the same being supplemented by a course in the sciences under tutelage of the late Prof. John Wolf. He was a bright, intelligent and active child and grew to manhood with never a serious attack of illness. His intellectual capacity was above the average, with a high development of the emotions, making him through all stages of his life an agreeable companion, benevolent and kind, a model husband and a parent whom his children adored. The ideal of his life was perfection in everything he undertook, and sacrificed himself to a too strenuous effort to attain that end. A marked characteristic was the power of concentration and intense application to the attainment of any desired object. He threw all his powers of soul and body into his work, and could not rest while matters were undecided.

Something like a year before his death Dr. Sutton complained to his father that he did not know what was the matter with himself, since he could no longer concentrate his mind, or think continuously, and his brain felt as though "bound down with a tight band," and there were shooting pains through it. His father admonished him of the necessity for absolute rest, but though he did lessen somewhat the self-imposed strain, he committed the fatal error of clinging to the responsibilities of practice when there was no room for trifling.

Dr. Sutton took his medical degree from Bellevue Hospital Medical College, New York, in March, 1891. He continued in general practice with his father in Canton until September, 1895, when he removed to Peoria and devoted himself exclusively to the practice of surgery. Prior to that period he had spent some months in European clinics, and made a second tour of the kind in 1900. He was a good diagnostician, and a watchful, clever operator.

Dr. Sutton was a member of the Medical Staff of Cottage Hospital and allied himself with numerous professional associations, and contributed a considerable number of valuable papers bearing on his branch of work. He was a member of the American Medical Association, the Illinois State Medical Society, of the Surgical section of which he had been chairman; of the Western Surgical Society, the Military Tract Medical Association, and the Peoria City Medical Society. He was likewise a member of different social orders, such as the K. T., Shriners and Elks. He was a Republican in politics, was from early life connected with the Baptist Church, and at the time of his death was a member of the First Church of that denomination in Peoria.

On February 20th, 1895, Dr. Sutton was united in marriage with Miss Nannie Mage, of Havana, Ill., by whom he had five children, three of whom are living and two dead. The distinguishing domestic characteristics of his wife made Dr. Sutton's home life unusually delightful, and he loved it dearly. Certainly nothing but a fixed dread of impending mental disaster could have led him to take his own life after a kiss of affectionate warmth and a loving admonition to be courageous and all would yet be well.

O. B. W.